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The Industry's Vital Problem

Producing a "Better Dealers" Organization Requires Constant Co-operation and a Frank Portrayal of Facts. The Dealer Must be Started Right, and Not Until Then Can He Sell Motor Trucks at a Profit

By A. V. COMINGS

THE greatest problem facing the manufacturer of motor trucks today is the problem of the retail dealer. How can he get more good retail dealers to sell his trucks in every city and town in the whole country, that their combined sales may form an outlet for his full production—dealers who will remain in business year after year?

It is a serious question, for of what possible use is a fine manufacturing plant, turning out high class motor trucks, if there is no retail selling organization to market these trucks at a profit after they are built?

In the past two or three years there has been an appalling dealer "turnover." Hardly is a new dealer connection formed by a factory than it passes on to dark oblivion, and the work of establishing new dealer connections in that territory has to be done all over again. This is expensive work, and heartbreaking work, for the sales manager and the field men whose efforts are almost wholly devoted to building up and handling a constantly changing dealer organization have little or no time for the constructive sales building which the industry needs so sorely just now. It is very much as if a building contractor found that as fast as he built one part of a building, some previously built part of the structure would fall down, and he would have to return to that part and build it over again.

Is It the Dealer's Fault?

What is the matter with this retail motor truck dealer? Why is it that his business life is so short? Why is it that the manufacturer's cost of building up dealer organizations has run to such prohibitive figures?

I believe the fundamental reason for the failure of the retail selling organization of many motor truck companies is that the dealers attempt too much. Either the factory puts wrong notions in their heads **as to the profits to be made in the business,** or the dealer gets the idea elsewhere, and he trims his sails accordingly. When he wakes up to the real facts in the case—that he is operating in a tremendously competitive market—he finds that he has committed himself to expenses that the business will not justify and to get the ready money necessary to meet his obligations **he stoops to every bad practice known to the business world.**

The motor truck dealer who expects to survive in this business has got to get right down to bed rock. He has got to face conditions as they are, and not as his factory nor as he would like to have them.

Incurring Too Much Unnecessary Overhead

I think one of the gravest errors that has been made in this business to date has been the one that has led new dealers into leasing expensive show rooms, establishing service stations that were a continued expense, and otherwise starting out in business as though large profits were assured from the very first. I believe the factories have been somewhat to blame for this, for naturally they have wanted their trucks sold in a community under the most favorable auspices, and where a prospective dealer has had the money to go ahead and do these things, they have allowed him to do it rather than advising him to go conservatively, and **spread out as business warranted it.**

Judging from what I have seen of the retail truck business, from one end of the the country to the other, the dealer who starts out this way these days is foredoomed to failure and disillusionment. He listens to the story of the factory man or sales manager, of the big margin in truck sales, of the advantages of introducing the truck with the proper sort of show room, service station and offices, and on the strength of what they say he leases a showy place in the high rent district, fits out a too-elaborate service station, lays in a large supply of parts and service materials, and places an order for two or three carloads of trucks of various models.

All this may be right and proper when business is going full tilt and there is a big demand for motor trucks.

But that is not the case today, and **today's** conditions are what the motor truck dealer has to face.

Now what happens?

The new dealer starts out to sell trucks, and he finds himself immediately up against the stiffest—and the most unscrupulous—competition. He finds that the average buyer of trucks has an old piece of junk he insists on trading in at an exorbitant figure if he is to purchase one of the dealer's new trucks. He finds that several other truck distributors or dealers are selling motor trucks on which their factories have given them such a wide margin of "profit" that they willingly take in the prospect's old junk truck at a preposterous figure in order to make a sale.

Starts Off Well, But—

He is unable to convince the prospect that the other dealer is really overcharging him for the new truck in order that he may absorb the loss on the old one, and the new dealer loses the sale.

The next prospect is of the same stamp, with an old truck to trade in. With rent coming due, with the pay roll to be met, the new dealer needs some ready money, and he pockets what he knows will be a loss and lands this customer by agreeing to give a price for the old truck that he

knows, clear down in his heart, **is away above what it is worth.** But he needs the ready money, and he wants to "get one of our trucks on the street."

This same thing happens over and over again. Not always a used truck to be traded in, maybe it's a slice off the list price of his competitor's truck that has to be met. And, with his big overhead staring him in the face, the new dealer repeatedly makes sales hoping against hope that he can wriggle out of the trap somehow.

The factory executives wonder why there is no repeat order for carload shipments of trucks, and then one day they find that they are again without a dealer in that city, where their representative opened with such a flourish and with such "bright prospects." And they have to start all over again and land another dealer there.

But, and this is one of the worst features of this kind of selling, the few trucks that unfortunate dealer did sell and whose owners are trying to run at a profit, are left absolutely without service facilities of any kind, other than the kind the average garage can furnish them. There is no dealer interested in keeping the trucks running, there is no one interested in getting them service and replacement parts as quickly as possible. And, in most cases the factory that built the trucks is so intent on making the immediate dollar that when a service garage in that city does order parts to keep those dealerless trucks running and earning money for their owners, he is charged a price for the parts that is beyond all reason.

In the meantime, the owners of that particular make of truck accumulate a mounting disgust at their purchase, and they do not hesitate to spread the bad news among other truck owners.

The Same Story Over Again

And so, when the factory again manages to get a dealer in that territory, he not only has all the obstacles toward success that the original dealer had, but must also face the bad reputation for his line built up by bad service, slow and expensive parts delivery, and all the other ills that result from this sort of dealer connection.

But finally a new "connection" is made, and this new dealer, starting out with "bright prospects," goes through very much the same experience.

This is the cycle, repeated time and again in almost every city in the land, and with almost every motor truck manufacturer in the business. "Anything to get the business" might well be the slogan of the present day retail truck dealer. More than one first-class business man has left this field in the past two years, to enter into merchandising of some other commodity where he could meet competition on a businesslike basis, where his ability would gain him a livelihood.

The Better Dealer

Is there a remedy for this condition?

I do not know that there is a remedy, but I am certain that the condition may be changed very materially for the better if the factories will change some of their methods and the dealers who are now struggling along will stiffen up their backbones and turn over a new leaf in their organizations. It will amount to almost a revolution in some factories and with some dealers, but I honestly believe it will be the starting point for real profit and a slowly growing business for those organizations that make the change. And this business will be resting on a real foundation, not on a constantly shifting, irresponsible groundwork that crumbles and has to be rebuilt time after time.

If I were a motor truck manufacturer today faced with the necessity of building up a permanent dealer organization, I would pick as dealers, men who are willing, first of all, to work hard, to whom ten and twelve hours a day would not be too long. For hard work is the basis of success for the dealer who is getting by today, and there is no room in the retail end of this business for the man who has a little capital and thinks he can spend most of his time sitting in a swivel chair bossing a sales force, or hitting a ball around the golf links. He will have to do most of the hard work of selling and keeping up contact with his customers himself.

In Regard to Show Room

There is absolutely no necessity of a large show room "down town." Trucks never were sold from show room floors, and never will be. Those trucks that the dealer may have to store for brief periods may better be placed in storage out of the high rent district, where the addition of overhead charge to his monthly account will be at a minimum figure.

For an office, I believe this man should take desk room in a down town location, in some manufacturer's agent's office handling automotive lines, or some similar place where he could have the use of a telephone, and be sure of some one always being in the office, etc. He should pay the extra fee necessary to have his name in the telephone directory, of course, and make certain that his interests would be taken care of in his temporary absence from this office. The cost per month of this arrangement is small.

It is practically impossible these days to make a service department pay a profit to the average truck dealer. So I should say that the dealer, until he can see his way absolutely clear to servicing his own trucks, should enter into contract with some good independent service station to handle his work at a regular rate, and this arrangement could be made very satisfactory to dealer, service station owner and truck user.

Real Factory Co-operation

The factory's attitude toward this type of dealer—and I am assuming that they have picked the right kind of man—should be that every possible co-operation should be extended to him. He should **not** be required to lay in a supply of two or three carloads of trucks to worry about. His supply of trucks should be limited to two or three at the outside, and these of popular selling models.

To be sure, the factory man who made the contract with this dealer couldn't go back to the factory and throw out his chest with the statement: "Well, I got us a real dealer in Blanktown today. Sold him three carloads of trucks." Neither would the factory connecting with this type of dealer find him broke, the line "black eyed," and the work to be done all over again within six months.

This kind of truck dealer, without a huge overhead staring him in the face, without large bank obligations to meet every month or so, can go forth and put his very best effort into selling, and he will get results.

He is not going to sell as many trucks, right away, as some other types of dealers, for he is **NOT going to take in old junk trucks at preposterous figures.** When he faces the loss of a sale because the other dealer wants to lose a hundred or two on a trade-in, he grits his teeth and loses the sale. **But he doesn't lose money.**

When he makes a sale, there is a **clear net profit** on that sale, and although when the end of the year comes he has not sold a great number of trucks, he has MADE MONEY on the trucks he has sold, and his net profits for the year are very fair.

This kind of dealer, too, keeps in the closest touch with every customer after he buys a truck. He watches the trucks at work, he studies the haulage problems of the customer, and he does everything he possibly can to help his customers cut down their haulage costs through suggestions he is able to make them through studying their methods.

Building for the Future

He gets to know their drivers, their traffic managers, their garage men. He is constantly building up good will, and after the first year he finds that sales are being made easier, for the men who bought trucks from him are all boosting for him.

Perhaps the second year he is able to hire a salesman, on commission or otherwise, but he doesn't even do this until he is satisfied the business will justify it.

HE IS IN BUSINESS TO MAKE MONEY, and he knows just what the net profit on his business can do, and what it can not do.

A few hundred of this type of dealer, scattered over the country, can sell the output of a large factory, for, although their individual sales are not large, their combined sales reach into big figures.

And this kind of a dealers' organization is building a permanent prosperity for the factory that has it.

The factory can't show a wonderful group of photographs of "our dealers' places of business in various cities," but it can show a steady volume of production and a good bank balance.

I realize that motor truck selling today is on a very keen competitive basis. I realize all the difficulties that both manufacturer and dealer are up against.

But no manufacturer and no dealer ever stayed in business through continually selling at a loss, just "to get the business."

The quicker dealers sell trucks only when they can sell them at a profit, the quicker factories gauge their production on the basis of what their dealers can sell at a profit, the quicker their business will approach a paying basis.

The time is just about here for many factories to realize this.

Electric Railways Officially Recognize Utility of Motor Bus

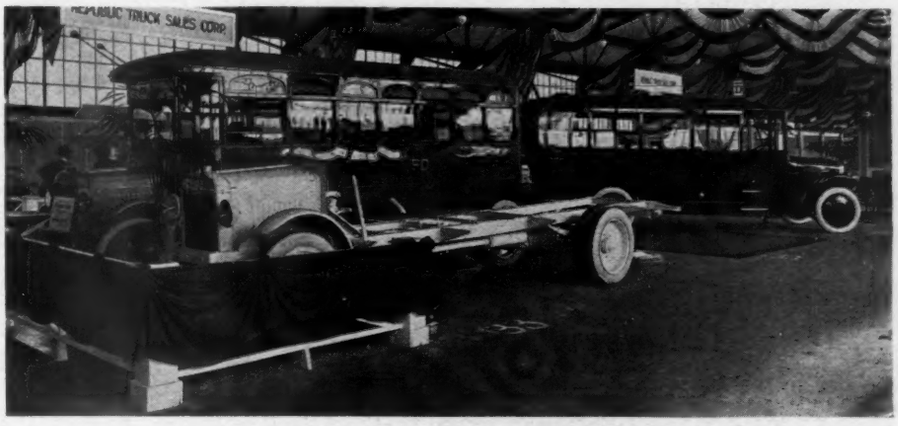
The Recognition Was Expressed in the Prominent Position Given the Motor Bus Manufacturers in the American Railway Convention Exhibit, Held at Chicago During the Week of October 2-6

By A. V. COMINGS

FOR the first time in the history of the American Electric Railway Association motor buses were given a prominent position in the company's convention exhibit at Chicago during the week of October 2-6. This fact is tremendously important to the motor truck industry, for it shows that the electric railway men, long openly hostile to the motor bus as a competitor, have come to a full realization that the bus may become a valuable auxiliary to their business, and they are looking to it to solve some of their very intricate problems of extension of service without the terribly expensive investment that modern steel tracks and electrically driven rolling stock entails.

To be sure there are still a few of the older executives among the electric railway men who refuse to see the hand writing on the wall, but for the most part, the executives frankly admit the necessity of the motor bus or city coach as an economical feeder for their electric lines, and these men found the various bus exhibits at the convention of vital interest.

The electric railway men didn't say very much about the motor bus in their convention sessions, but every once in a while the subject would come to the surface and then the things that were said showed very plainly how they felt about it. They were thoroughly in accord that the transportation system in the modern city, to be successful both in handling traffic and paying dividends, must be a monopoly. Therefore, erratic and insufficient "jitney bus" service must be done away with and in its place must come well-directed motor bus operation controlled and owned by the electric railway company, and co-ordinated with the electric service so that passengers may have the very best transportation at all times and in all sections of a city in the most economical manner.



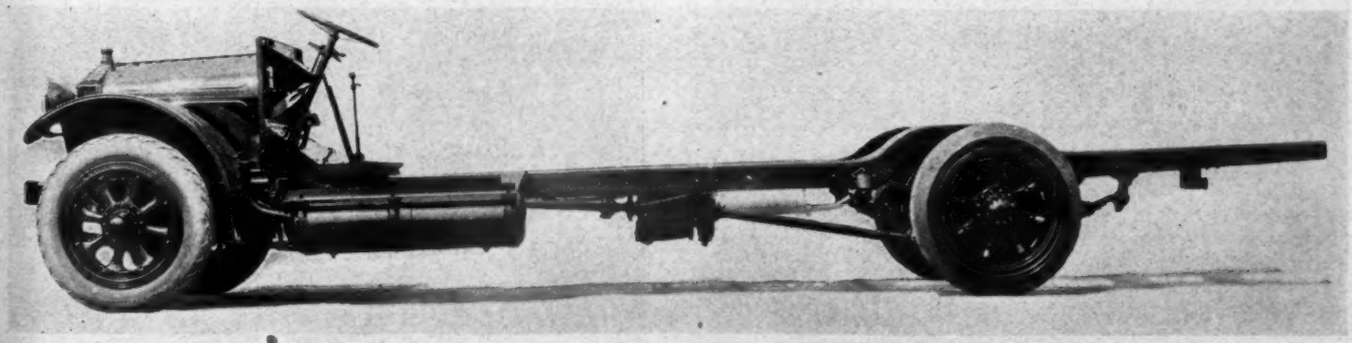
The Republic Truck Sales Corporation's Exhibit, Showing Two New Motor Bus Models

M. C. Brush, known among street railway men as "Matt" Brush, gave the electric railway executives a straight from the shoulder talk on the motor bus and their attitude toward it. Said Mr. Bush:

"It's a hell of a state when you transportation men let some beggar buy a truck and put a seat on it and compete with you while you sit by and say 'you public have to ride on my car on my rail at 8.06 a. m.' If I want to go some place you ought to take me, and don't let the other fellow do it, because it's your business."

Mr. Bush believes that while the railway men have no right to say jitneys shall not operate, they surely have the right to put the jitneys out of business by running buses of their own of such a character and efficiency that the jitney type will automatically disappear.

Of particular significance was the holding of this convention in Chicago just at this time, for the Chicago elevated railways have just decided upon a policy of using motor buses as feeders for their outlying electrically-operated lines. Sample buses have been ordered from several motor truck companies, and these will be given a thorough trial. It is understood that when a final decision is reached, several hundred buses will be placed in service in this work. This is the biggest single development along this line since the inception of the industry and no doubt its announcement during the Chicago meeting had a tremendous effect in centering interest on the bus among the railway men.



The Garford Bus Chassis; Designed Especially for Urban Service

The recent purchase of the Chicago Motor Bus Co., by the Yellow Cab interests was news of a very disturbing character to the electric railway men, too, for no one of them is ignorant of the wonderful success of this company with motorized transportation. A revolution in motor bus service on Chicago's boulevards may well be anticipated within the next few years under the energetic and farsighted management of the Yellow Cab interests, and what they have done in other cities through the introduction of yellow cab methods may yet be duplicated in those cities with motor bus operation.

It is a period of very rapid development in motor bus construction and operation, and the motor truck industry will do well indeed to keep just a little more than abreast of the times in this development.

The Exhibits

In spite of the fact that it has been scarcely more than a year since motor truck companies got right down to brass tacks on designing and building real motor buses, the exhibits of truck manufacturers on the pier were exceptionally interesting. They showed the tremendous step taken in almost a period of months from the old bus body mounted on the commercial hauler's truck chassis, to the present coach type of motor bus, hung low over the running gear and with appointments quite equal to, or better than, most electric street cars.

One of the most interesting exhibits was staged by the **Republic Truck Sales Corporation,** in charge of S. R. Swiss, advertising manager of the company. The exhibit consisted of two interurban type motor buses of a design entirely new with the company, and exhibited for the first time at this show, together with the chassis used in this type of coach. The buses are powered with the Republic-Knight motor which has attracted considerable attention among engineers in this type of service.

The Republic Company now has motor buses of a similar type in service with street railway companies in Baltimore, Youngstown, O., Providence, R. I., New Haven, Conn., Boston, San Diego, Cal. and Newark, N. J.

The Selden Truck Corporation showed two of their Model 31, De Luxe type of coaches for inter-city service, each of 18-passenger capacity and with all modern equipment, as previously described in these columns. The two buses shown have already been sold for service between Cleveland and Lorain, O. The Selden exhibit was in charge of H. T. Boulden, vice-president of the company, and Charles E. Stuart, sales manager.

The Garford Motor Truck Co. showed a chassis and complete unit of its Model 51-B City Coach, a handsome bus type of vehicle for use in handling urban traffic economically. This car and body have been fully described in these columns, and street car executives who visited the exhibit found much to admire and commend in this latest product of the Garford engineering force. J. F. Bowman, general sales manager of the company was in charge of the exhibit.

One of the features of the Garford exhibit was a series of colored bulletin boards showing in pictures how the modern motor coach is an absolutely essential adjunct to the street railway system in gathering in the passengers from points off the lines, to feed the cars that are of necessity confined to the streets on which there are rails. The picture showed better than the printed word the necessity of the motor coach, and gave the visiting railway men food for deep thought.

One of the most interesting single coach exhibits was staged by the **Fageol Motors Co.,** of Oakland, Cal., in charge of Frank R. Fageol.

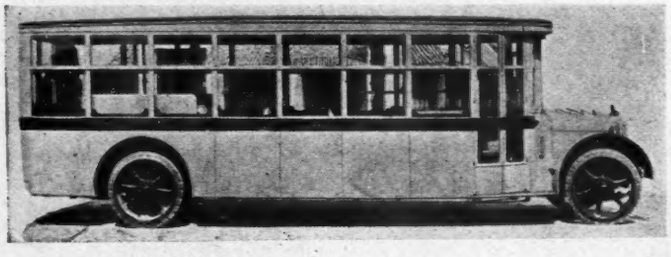
This company showed its Safety Coach, a low hung, speedy, and modern street car model motor bus designed for quick service in congested areas. This bus, described at length in a former issue of this journal, has met with much favor since its introduction, one of the recent installations being at Everett, Wash., where the Stone & Webster Co. has placed eight Safety Coaches in service in place of the electric street railway system, which has been scrapped. Eight more of this type are on order for this same installation.

The Ace Motor Truck Co., of Newark, O., showed one of its latest city motor bus units, in charge of Mark A. Smith, sales manager of the company. This bus is similar to the ones now being used in regular service on Columbus, O., boulevards, and will be placed in service shortly to supplement the buses which have built up a constantly growing business in Ohio's capitol city.

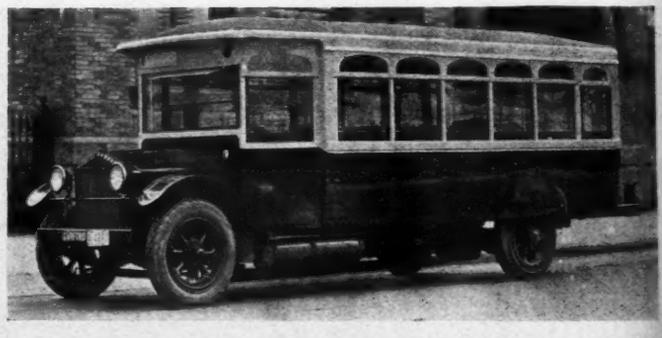
The White Co., of Cleveland, O., displayed a variety of motor buses and coaches of types used in several city and inter-city lines throughout the country.

Motor manufacturers well-known to the truck industry displayed special engines for use in bus work.

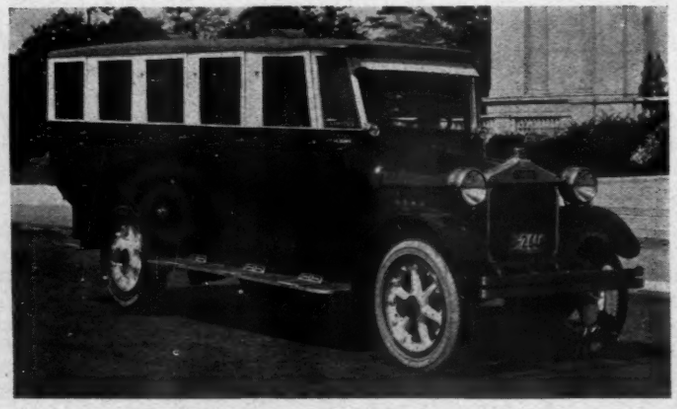
The Buda Company., of Chicago, showed three motor coach motors, as fol-



Left: The Fageol Safety Coach



Right: The Garford Model 51-B City Coach.



Above: The Selden Model 31 De Luxe Coach.

Right: The Ace; One of the Recent Developments.

lows: Model EBU, cylinders 4¼ x 5½, Model CBU, cylinders 3¾ x 5¼ and Model YBU, cylinders 4½ x 6. The latter motor was cut away to show its excellent constructional features.

The Buda Company has brought the weight of its coach motors down to the lowest point commensurate with the hard work of this service, and is now using counter balanced crank shafts, to eliminate vibration, air-cooled shaft and connecting rod bearings and Buda patented force feed lubrication. The new manifold used on these coach engines also delivers hot, dry gas to cylinders increasing the power of motor by a very considerable margin.

The Waukesha Motor Co., of Waukesha, Wis., displayed a Model F-U motor designed especially for the exacting service of motor bus work.

A pressure air brake system for use on motor buses was exhibited by **Westinghouse Air Brake Co.**, which attracted much attention from engineers who have to do with designing this type of vehicle. This brake gets its air pressure from one or two cylinders of the motor, using the explosive pressure from the cylinders, and storing it in a tank under the vehicle. Braking is accomplished by applying this pressure, through a driver's valve, to rubber diaphragms, to which are connected the brake rods. A complete outfit for motor buses was displayed and operated in the Westinghouse booth.

Several of the former exclusive manufacturers of street car bodies, notably the J. G. Brill Co., Philadelphia, showed their interest in motor bus construction in their exhibits by means of photographs of bus bodies they have built, together with constructional details, etc.

On tracks laid outside the exhibit hall, the **McGuire-Cummings Mfg. Co.**, showed a motor-driven street car for which they had built the body, mounted on a Mack Motor Truck Co. motor-driven railway chassis.

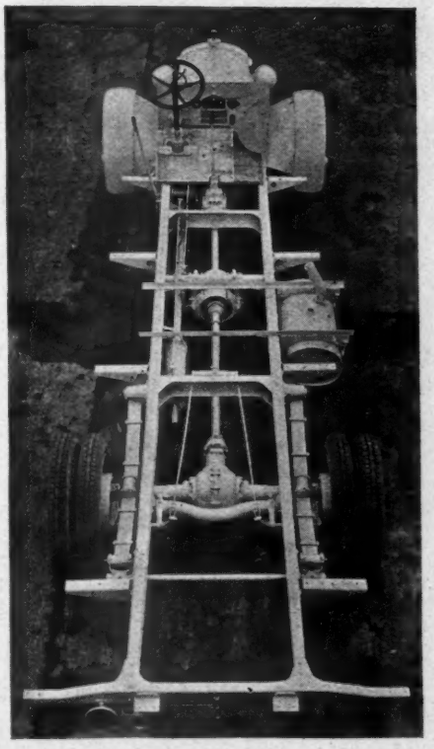
New Republic Interurban Bus

THE Republic Truck Sales Corp., has just developed a new type of interurban bus for operation on long concrete bus lines. The original model was on exhibition at the convention. The body was built by the Bender Body Co., of Cleveland, and is of the streamline type and seats nineteen passengers, ten on double cross seats along left-hand side, five on single seats along the right-hand side and four on the rear seat which extends across the full length of the body.

The body is mounted on the standard Republic Knight Motored Bus chassis and has 175-in. wheelbase. It has a front entrance on the right-hand side with a 25-in. clearway, a two-panel folding door that is operated by a nickel push-rod which can be locked when the door is closed. The door folds outward.

The floor level is 26 in., there being one step which is covered with corrugated rubber. The side posts are spaced on 40-in. centers which provide wide and airy window space. The window glass is heavy plate and operated by a crank as in modern limousine body construction. Each window can be operated at the will of the passenger. The interior finish is mahogany below the window sill and the ceiling is finished in brown leather.

The lighting arrangement consists of eight dome lights. The seats are of the cross-legged type. They are substantially upholstered in leather and are of sufficient width, 36 in., so that two people can sit comfortably without interference. Aluminum seat handles are mounted on the aisle corner of each seat. The seat cushions are 17½ in. in width and the backs are 22 in. high. Seats are spaced on 30-in. centers. The single side seats are 19 in. in width and have the same dimensions as the two-passenger cross seats. The width of the aisle is 17 in.

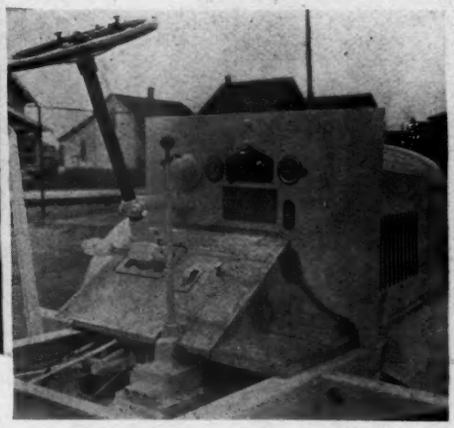


Top View of the Republic Chassis

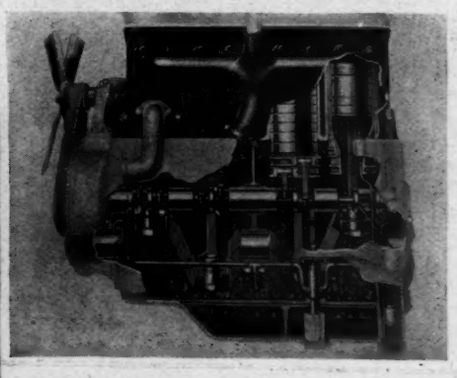
In each window is a maroon silk curtain on spring rollers and are cord strung so as to keep them from swaying. The floor has first a linoleum covering over which is placed a carpet that comes in sections and which is fastened down by means of clips. This allows the carpet covering to be removed at frequent intervals for cleaning purposes. Other accessories that go to make for convenience of the passengers and operator are Faraday buzzers in each post, coat hooks at each post, step light and ventilators in the arched roof. The inside width of the body at the top of the seat cushion is 72 in., and the 72-in. headroom provides ample space for the average passenger to walk up and down the aisle.

For the convenience of the operator, all controls for lights and ignition are mounted on the dash. He also has a leather curtain that he can pull down behind his bucket seat to shield the light rays that reflect from the glass windshield when the bus is operated at night. He also has an adjustable windshield which can be controlled from the inside, a black sun visor and cowl ventilator which is operated by

Detail View of Amidship Brake. Thumb Nut Permits Easy Adjustment



The Arrangement of Instruments and Control Levers is Very Compact



The Knight Type Engine is Used in the Republic Bus

a handle on the dash. There is also a Foberth automatic windshield cleaner and a 24 x 6 in. mirror to enable the operator to get a view of the interior.

Tires are 34 x 5 with duals in the rear. Budd-Michelin wheels throughout. A spare tire mounted on disk wheel is carried under the rear of the body back of the rear axle in an enclosed compartment. Stewart double-type bumpers both front and rear. An intake port for gasoline is located on the right side of the bus, outside, making easy work of the detail of taking on fuel.

Some of the principal dimensions are as follows: Length overall, 280 in.; length exclusive of bumpers, from the tip of the frame to the rear of the body, 222 in.; from tip of radiator to end of body, 266 in. Length of body inside is 210 in., and 224 in. outside. The outside width is 78 in. All told, the vehicle weighs 8500 lb., complete without passengers.

There is also a rear emergency door which is 35 in. wide and takes in half of the rear end. A stop light is also mounted on the rear connected to the clutch pedal.

Here's a Real Motor Truck Dealer!

WHEN I say that Frank Girard, of Columbus, O., is a **real** motor truck dealer, a **successful** motor truck dealer, the average manufacturer will immediately conjure up a picture of a big plate-glass-fronted show room, with several different models of motor trucks shining in bright-colored paint and brass work; a suite of offices over in one corner, maybe; several salesmen coming and going; a large and busy service shop in the rear and the proprietor closeted down town with his banker, figuring out how he is going to invest all his large profits in stocks, bonds and gilt-edged securities so as to get the greatest return on his investment.

Well, they've got the wrong picture in their mind, insofar as this particular successful motor truck dealer is concerned. Girard's plate-glass-fronted show room, and his suite of offices—but let me tell the story from the beginning.

Frank Girard started in the automobile business something like twenty years ago, when the industry was so busy developing the passenger car that few gave any attention to the possibilities of the motor truck. Until 1919 Mr. Girard gave most of his attention to the passenger car end of the business, but he had kept in close touch with the development of the motor truck market, and in that year decided to start out on his own as a motor truck dealer. He took on the Autocar Company's line of trucks for the Columbus, O., territory, and got busy immediately.

Did he lease a fine, big show room with plate-glass windows, big floor space for the display of trucks, and with a suite of offices with the usual clerks, bookkeepers, telephone girls, etc.?

He did **not!**

Girard knew that the motor truck business as it is today will **not** stand the big overhead with which so many dealers burden it. He did not fit up a fine place such as he would like to have, but faced the selling of motor trucks exactly as facts and figures showed him it must be faced.

He rented desk room and the use of a telephone for $25 a month in a well-situated automotive equipment store, where a few specialized lines were handled. He hired no salesmen, for he meant to be manager, sales force, service boss and everything else all in one until such a time as the motor truck business—as it is, not as we would all like to have it, would justify these expenses.

He did not open a big profit-consuming service department, for there were already several garages in Columbus capable of servicing motor trucks if properly supervised, and with the best of these he made definite arrangements to take care of his service properly and at the right kind of price.

And then he got busy.

No whistle sounded to call him to his work in the morning, and no one told him when it was time to quit in the late afternoon. Hard, day after day sales effort he put in from the first, and as he landed first one order and then another, the many details of service, both mechanical and personal, and the necessary time he had to give to correspondence, bookkeeping, etc., kept him on the job from twelve to fourteen hours a day.

Trades for old trucks **he would not consider,** unless there was opportunity for a quick sale of the used vehicle at a handling profit. Girard was in the business of selling new motor trucks at a profit, and he saw many a sale slip through his fingers because some other alleged truck dealer was willing to sacrifice profit, even to lose money, just to "get the order." He has seen several of those men silently pass out of the picture, as they always must if they persist in doing business that way.

And now I'm coming to the real dope on this man Girard.

He didn't stop at merely landing an order from a customer.

He has kept in the very closest touch with every man or corporation he has sold Autocars to, and he has taken every opportunity to help them make more money with their trucks through suggestions he has made to them. He has studied the haulage problems of each customer, which has enabled him to make their trucks greater profit-earning units, because he has studied intelligently and has gone to them with practical help.

Frank Girard
A successful dealer of Columbus, Ohio

More than once he has refused to sell trucks to men who already were customers of his, because he knew they did not have enough business to make the new units profitable—yet. He has shown them why, and then when the time came that their business did justify it, Girard was there to prove it to them and land the order.

He has helped his fleet owners to better systems of dispatching their trucks, so that there would be less idle time. He has insisted that one big fleet owner paint the company's name in large letters on the sides of every truck as a traveling billboard, and earned the thanks of the company even though they had been pretty well sold before that on a nice little emblem which looked artistic, but that didn't get them any real traveling publicity.

Girard has made it his business to know practically every driver of the trucks he has sold, and when some little trouble develops, he has the friendship of the driver and that helps, always. He usually has a cigar or two in his pocket, and the boys always like a good cigar.

And with those fleet owners who service their own trucks, Girard is always on the job in their service shops to suggest, to help, to show the men the better methods.

Girard keeps an adequate supply of service parts on hand, so that his trucks are not held up for service, but his working capital is not tied up in a lot of useless investment.

Girard's banker is with him, a hundred per cent, for he has done business in a business-like way, and has met his obligations promptly. His factory is with him, because he has proved himself a **real** dealer. To be sure, he has not sold a vast number of motor trucks, but those he has sold **he has made money on,** he has kept them running as they should be kept running, and he has made his whole three years in the business a constantly growing asset to himself and to his factory. Needless to state, his factory has never shipped him two or three carloads of motor trucks, (just because it had over-produced), with telegraphic request to please remit immediately.

These are some of the reasons why I say Girard is one of the best motor truck dealers in the country.

Charting the Future Market of the Automobile Industry

Address by C. A. MUSSELMAN, Treasurer and General Manager CHILTON COMPANY, Delivered Before the Motor and Accessories Manufacturers' Association in Convention, Buffalo, September 13-15, 1922

PROBABLY there has been no period in the history of the automobile industry when there are as many upsetting elements as seem to confront us today. When the motor car business was in the process of development, there were many unsolved problems and the course we steered from 1900-1910 was rather an uncertain one. As rapidly as grew the automobile industry from 1910-1920 its progress was at times irregular. Nor has it traveled a smooth and regular route from 1920 until the present time. But so essential has become the automobile and so permanent as a part of our economic life, that it seems safe to predict a straight and sure course can be steered from 1923 to 1930.

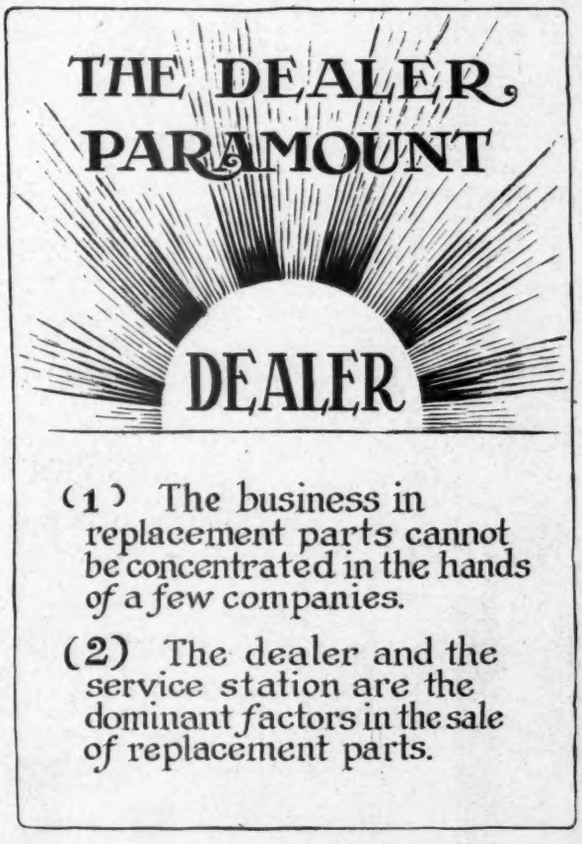
Before dealing in detail with the subject of greatest interest to those assembled—namely, the future of the makers of parts and accessories, a composite picture of the industry will be shown by graphs and illustrations in order that we may visualize the changes that are remaking the character of the business. After dealing with the broad subject of the automobile business as a whole, based on car productions and sales, I will take up the subject of marketing parts and accessories and indicate the possibilities for manufacturers in these lines, based upon a new order of things in merchandising in the replacement field.

First, let us realize that in America the greatest manufacturing enterprise in value of output is the automobile industry. Many are of the belief that the steel industry is largest. Considerable research work thru the Bureau of Foreign and Domestic Commerce, Bureau of Census and the Bureau of Mines at Washington, has resulted, however, in obtaining figures placing the automotive industry first and its allied industry, petroleum products, second, and it may surprise many to learn that iron and steel manufacturing ranks sixth. Agriculture has been excluded as farming can scarcely be classed a manufacturing enterprise.

To discuss fully the intricacies of America's greatest industrial enterprise in a few minutes, is obviously an impossible task, but by showing a few statistics and illustrations I hope to present several fundamental facts which may assist us in visualizing the size and character of the market and enable us to make our future sales plan with greater knowledge of the facts. The dollar value annually of America's ten leading manufacturing trades is as follows:

Automotive Industry (Cars, trucks, tires and replacement parts)	$2,865,000,000
Petroleum Products (45% automotive)	2,050,000,000
Slaughtering and Meat Packing.	1,935,000,000
Foundry and Machine Shop Products	1,900,000,000
Lumber and Timber Products..	1,675,000,000
Iron and Steel	1,650,000,000
Clothing	1,530,000,000
Flour Mill Products	1,275,000,000
Cotton Goods	1,250,000,000
Boots and Shoes	1,100,000,000

Calculated sales of automotive products for 1922 have been divided into four classes:


THE DEALER PARAMOUNT
DEALER
(1) The business in replacement parts cannot be concentrated in the hands of a few companies.
(2) The dealer and the service station are the dominant factors in the sale of replacement parts.

Cars and Trucks	$1,490,000,000
Replacement Parts	550,000,000
Tires	675,000,000
Accessories	150,000,000
Total	$2,865,000,000

If we add to the above figures the sum of $935,000,000 representing the value of gasoline and lubricants annually necessary to motor vehicle operation, we arrive at a grand total of nearly four billion dollars. And even this enormous sum does not include the cost of labor and administration.

For the past ten years the industry has been trying to determine how many cars America could absorb, and during that period we have ever had before us the bugaboo called, "Saturation Point."

Nobody has really understood the character and extent of the market. When a million automobiles were registered, the manufacturers and the public generally concluded that it would be possible for America to absorb two million. When these figures were reached, little did any one dream that one company alone would make 1,000,000 cars a year and, if told at that time that 5,000,000 cars would be absorbed, the average person would think that someone had been rubbing Aladdin's marvelous lamp. But the far-seeing of those days were bold enough to forecast the production of 5,000,000 cars although that generally was accepted as the maximum and became almost a recognized point of saturation. And this was the blinder which prevented the car maker from seeing the possibilities of his industry. Today, with over ten million cars on the roads, with everyone seeing twelve to fourteen million on the highways at no great distant date, I ask you, has not our mental process used in reaching conclusions been fundamentally wrong? **Have we not, to a very great extent, been using the income yardstick** as the measure of the market rather than the utility of the product which, even today, is not fully appreciated?

You can recall less than two years ago a large parts maker, in conference with one of our greatest newspaper statisticians, showed that by analysis of internal revenue reports, he could classify the people of the United States to prove by the income yardstick that only two million people could afford to own automobiles. This manufacturer stated that the surplus cars would have to be used for omnibuses or other business purposes, or be scrapped. While this news was being broadcasted, its fallacy was being proved by the demand of the buying public which classified the automobile as a necessity and not a luxury and boosted registration figures another million. And from two million predicted, there are now actually in use over ten million.

Beware of the prophets, if they be false prophets, which is so often the case especially if they are pessimists. A well-known statistician (who has made enough different manufacturers in various lines to believe in him to build up a very profitable business) by his own methods of calculating, attempted to show, both in his printed reports and lectures, that 1922 would be a lean year in the automobile business. Evidently he was not well versed in the subject with which he was dealing. In any event, he did not have an accurate picture of our great industry and was therefore unable to forecast the future correctly. Instead of 1922 being a year of leanness, it has been one of the fattest, for it stands out as the greatest production year of this greatest of all American industries.

The Luxury vs. Economy Fallacy

The fault with most of the prophecies or, I should say, the prophets, has been that they have placed the automobile in the luxury class, and have entirely overlooked its economic importance to the American family. Here we find the difference between success and failure in predicting the future of any industry—wrong classifications. The greatest chemists in the world will fail to secure the desired results if the wrong reagents are used in analysis—and the same is true in commercial laboratories, and if wrong reagents are used in research work, the findings are erroneous.

We no longer look to new owners to obtain the greatest volume of sales. Until 1922 the majority of cars turned out by the factories went to new owners. This year the ratio has changed and for every two cars that go to new owners, three cars go to old customers to replace those which are scrapped. Carefully made calculations for 1922 show 825,000 motor vehicles for new owners, 1,200,000 for old customers. Of this great total of over 2,000,000 cars produced this year the division of passenger cars and trucks is as follows:

Passenger Cars	1,800,000
Trucks	225,000

For this calculation we will assume that about the same ratio of new and old customers exists in the truck field as was calculated for the passenger car field, although I will admit that the research work done in this line for trucks has not been as exhaustive as the survey made for passenger cars.

Increase in Registrations

The increase in registration is remarkably consistent, both in new registrations and the total registrations, and, with the exception of the off year of 1921, a steady growth has been maintained since 1918. The larger the number of cars in use, the greater will become the replacement business.

	Increase in Registrations Over Previous Year	Percentage Increase
1918	1,163,340	23%
1919	1,412,231	23%
1920	1,652,447	22%
1921	1,237,327	13%

It is now obvious that the majority of automobiles to be made hereafter will have to go to those who already are car owners, but I, for one, feel the time will never come when new buyers will cease to demand motor cars in large numbers. Every year will bring its harvest—a new generation—a new army of buyers. Everything indicates a continued expansion. To realize this expectation, manufacturers of parts, tires and accessories will have to prepare for the waves of prosperity, as the incoming tide will surely flood those who do not build well for the future.

The Character of the Automobile Market of the Future

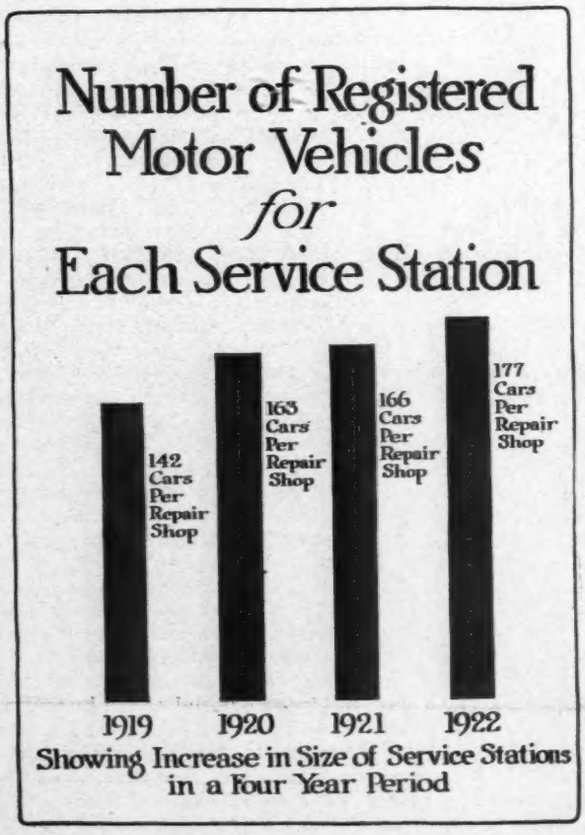
For ten years the parts makers have been drawing their chief profits from sales to car manufacturers. Only five years ago—in 1917—five-sixths of the vehicles went to new car owners. Today the situation is entirely changed and the great market is the replacement field. The extent of this change as already accomplished, is shown by the comparative figures for 1917 and 1922.

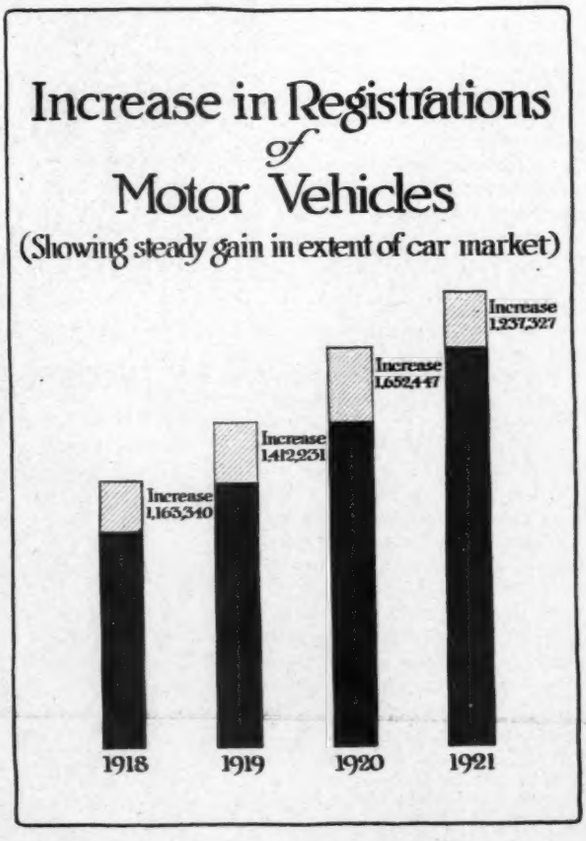
Sales for Replacement Purposes

While the number of cars and trucks built in 1917 was nearly equal to the total to be turned out this year, the following figures show that sales of replacement parts to service stations have nearly doubled, during this same period.

	1917	1922
Cars and Trucks	$279,022,000	$850,000,000
Replacement Parts	255,000,000	550,000,000
Tires (Replacement)	390,000,000	650,000,000
Totals	$924,022,000	$2,050,000,000

What better guide do we want in our efforts to approximate the character of market in 1923 than to figure the number of cars which have well passed their first efficiency and are ready to be rebuilt in whole or in part? And what greater assurance does the parts maker need to guarantee him satisfactory returns from the replacement field?


Number of Registered Motor Vehicles for Each Service Station
142 Cars Per Repair Shop
163 Cars Per Repair Shop
166 Cars Per Repair Shop
177 Cars Per Repair Shop
1919
1920
1921
1922
Showing Increase in Size of Service Stations in a Four Year Period



With the continued increase in the use of automobiles it is apparent that the replacement market will represent a constantly growing proportion of the total market.

What are you as parts makers doing to change your sales policies to meet these changing conditions? They are all in your favor if you will only take advantage of them.

The replacement market is the great opportunity of the present and the future. It offers:

(1) Greater volume.
(2) Greater profits.
(3) Greater independence.

Selling the Future Automobile Market

If we grant that replacement sales loom large on the horizon, then the dealer situation becomes of paramount importance to the manufacturer of parts and supplies for two very important reasons—first, the business of replacement sales cannot be concentrated in the hands of a few companies as is the case with the equipment business; second, the dealer and the service station are the dominating factors in the sales of replacement parts.

The average amount of business per service station has grown steadily since 1919 from 142 to 177 cars per shop. This shows that the service station per unit offers a greater opportunity for the manufacturer and that, further, these shops are becoming larger and more substantial sources of outlets for the trade. Establishing of yourself in the replacement field is a very definite form of life insurance for your enterprises. It's a market which always exists and one in which you can control your own business. To cater to this field requires a close contact between the manufacturer and the dealer and the initiative must come from you. There are a few worthy examples of what a progressive campaign in this field means to the maker of parts, and it is needless for me to point to the success of those companies which had the vision and initiative to tackle the job, for you can think of several among your members who are present.

In America today 59,000 service stations are offering service to nearly eleven million cars and trucks. Isn't this your potential market?

Concentration of car and truck production in the hands of a small group of makers obviously endangers the parts and accessory maker whose chief business is factory equipment. Individual initiative and public demand are such potent factors in American life that I for one believe that no group of corporations will ever control the automotive industry. Combinations may have a great effect on the character of the supply, and demand, and may divide the channels through which business runs and may result in companies adopting entirely new methods, but the big merger bugaboo has about as much reason for existence as the mythical "point of saturation."

While I am on this subject I want to tell you a little story which is in the nature of a confidence because, in the early days of the business with which I am associated, I, in common with a great many car and parts makers, had a very gloomy view of the future of the industry based on the dreaded demon, "Merger." I refer to that period in the history of the automobile business when a group of manufacturers pooled their patents and operated under the name of the Selden Associates. The outlook to nearly everyone beyond the pale was very discouraging, but, like most of our contemplated troubles, they never came to pass, and, instead of opportunities becoming dwarfed, changes took place which broadened the industry so rapidly that even the poor publisher forgot the green-eyed monster. In this connection I want to say that if we do not worry about what the future has in store for us but are ever vigilant and will change as the times change, there is no combination or combination of combinations that can curtail our efforts or our profits.

This has been a rather broad visualization of the size and character of the automobile industry, and I have endeavored to point out the changes which are taking place which vitally affect merchandising methods.

How the Trade Press Should Serve the Industry

I have been asked, among other things, to indicate what co-operation the trade paper should give the automobile business. Since in the final analysis our interests are identical, it is very evident that our mission is to co-operate. You support us with your patronage—we support you by analyzing market conditions, and, after having done so, locate these markets and open the doors through our columns for you to reach the buyers.

In this report I think it is well for us to study a few of the functions of the trade press. Primarily we can look upon the trade press as the focal point through which the manufacturer and dealer can reach the buyer. At a common meeting point the manufacturer and dealer interests become identical, and, therefore, through the trade press the buyer is reached in the most effective manner; hence the trade journal becomes the focal point of these two important factors in the industry.

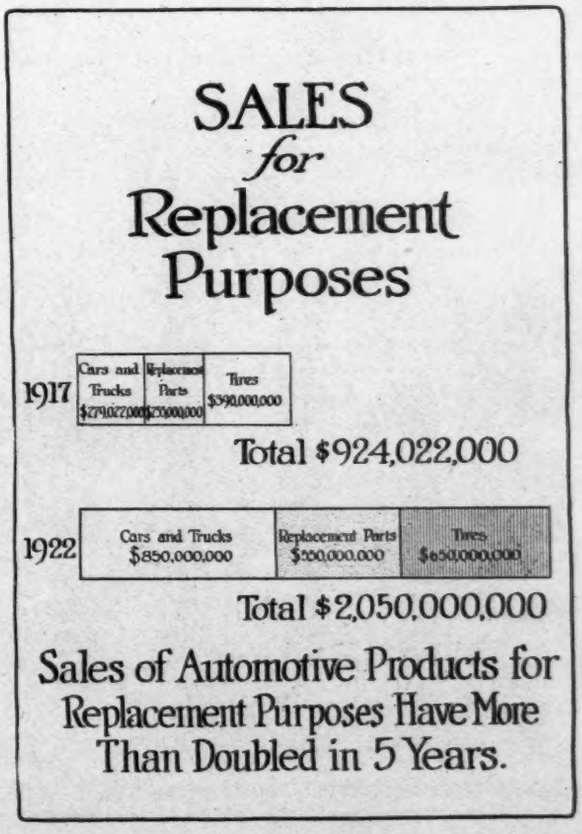
Not many years ago the average publisher of a trade journal when asked what business he was engaged in, would whisper the reply—and why the shame of it? Primarily the fault was the publisher's, for he did not take his own business seriously enough to place it upon an honest basis. He permitted the policies of unscrupulous competitors to be the basis of the conduct of his own business and grossly exaggerated circulation claims were the rule. And, because of this, the more scientific buyers of space became disgusted with the methods of trade paper publishers and, consequently, had little faith in trade journals.

With the appearance in the advertising world of organizations such as the Audit Bureau of Circulations, it became possible for space buyers to determine whether or not the claims made relating to quantity were justified by the facts. This was not only an excellent thing for the advertiser, but it was of real service to the honest publisher for it proved that there were trade journals that did have real circulation and could sell space upon a fair basis. That there is a need for high class journals is evident for the first step towards the consumer is always through the dealer.

It is my belief that the trade press now ranks first for the time and thought put into the editorial columns and that the co-operation given the manufacturer and dealer is much greater than the assistance rendered by the average consumer publication.

These improved conditions in the trade press field have had their effect upon the buyer of space who today is much more careful and analytical than ever before as is evidenced of late by his asking the cost per page per thousand trade units reached. In no other way can the advertiser arrive at the cost of sending his message to his trade prospects.

Following the demand for verification of quantity circulation claims came one for quality. Unfortunately this is a problem not so easily dealt with and to date the Audit Bureau of Circulations and many other associations have had to be satisfied with an attempt to prove quality through a classification of subscribers such as manufacturer, dealer, etc.



It is very unfortunate that some sure and accurate method cannot be employed to determine quality, for it leaves open a great field for the publisher who wants to make exaggerated and ambiguous claims with a knowledge that his statements cannot be checked. It would be a wonderful thing if this association could discover and put into force a plan to put all publishers on the same basis when making a claim about quality of circulation so that these claims could be verified in as thorough and satisfactory a manner as are the circulation figures which are audited by the A. B. C.

The trade press should sense the tendencies in the trade, anticipate important developments and through the reading pages convey information about business conditions of interest to those they serve—the maker and dealer. This requires not only the ability of a group of excellent editorial writers, but their support by the business executives of the publishers who are in daily contact with the industry.

The trade press should then go a step further and make commercial surveys. The trade paper publisher has the opportunity to dig deep into the methods of manufacturing and sales and it is now his mission to gather data of all kinds for the benefit of the industry he represents.

The CHILTON COMPANY has, the last few years, gathered together facts concerning various features of the automobile industry that five years ago it would have said it was impossible to obtain, and I believe that these reports have been helpful to the manufacturers in determining the best methods of merchandising their products.

The trade press has three very distinct functions to perform:

1st. To serve the manufacturer and dealer through advertising and editorial columns.

2nd. To consider every development in the industry carefully and point the way for the benefit of the manufacturer and dealer.

3rd. To ever be the missionaries of optimism, limited by a reasonable conservatism, so that most of the trouble which never comes to pass will not be yours to needlessly worry about.

Moving a Village by Truck and Trailer

THE town of Jennings, 11 miles north and east of Cadillac, was founded about a quarter of a century ago by the Mitchell Bros. Lumber Company. A saw mill, chemical, and flooring plant gave employment to approximately 500 men.

Various plans were considered for the preservation of the industrial life of the happy and contented little village but all were discarded. Then was born the idea of moving the mills, the families and the residences to Cadillac, eleven miles southwest. Many plans were considered and rejected as impractical before the motor truck and trailer were considered. Acme engineers studied the problem from every angle, then finally W. A. Kyser, president of the Acme Motor Truck Co., submitted a report to the lumber company which was accepted and the gigantic trailer illustrated was built.

The houses to be moved varied in size from 24 x 30 ft. to 24 x 40 ft. Many of them had hardwood floors, all were a story and a half high, well-built, comfortable and arranged for convenience. The weight of the houses varied from 15 to 35 tons. The windows were left in all of them.

These eleven mile trips were made in approximately 4 hours, which included all necessary stops to wait for traffic to pass

Showing How Residences Were Moved From Jennings to Cadillac
The house is 24 x 40 ft. and weighs about 35 tons

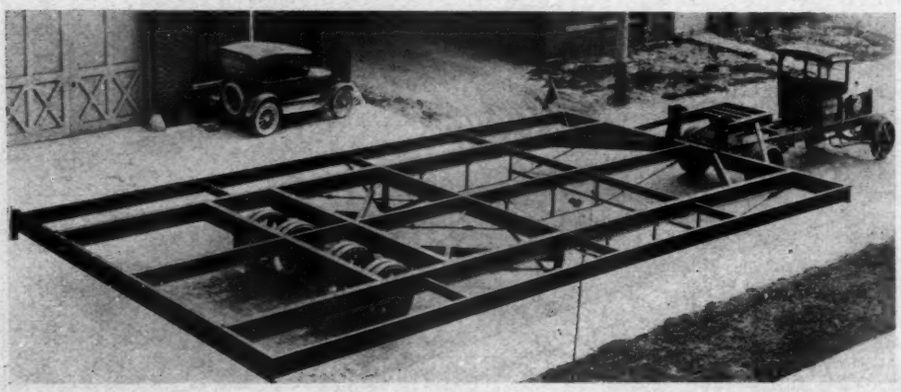
before entering upon a stretch of road too narrow to allow passing, though the actual running speed ranged from 5 to 8 m.p.h. Loading and unloading and passing through the city required a longer time than that, as it was frequently necessary to remove the electric light and telephone wires to allow the house to pass under.

At the time this article was written the rate of moving was about two houses every three days or four per week. There are from 75 to 100 of these residences to be moved, so the work will require all of the rest of the year to complete.

The trailer is constructed with a framework of heavy structural steel beams and is 24 ft. wide and 42 ft. long. A channel and I-beam platform, raised 18 in. above the trailer frame and rigidly connected to it, transfers the load to the forward end of the trailer to a rocking fifth wheel mounted on the truck. This construction eliminates all twisting stresses from the trailer proper.

The trailer frame is supported at the rear by four steel truck wheels abreast, equipped with solid rubber tires. These steel wheels are placed under the trailer in such a position that approximately 75 per cent of the weight of the trailer and load is carried on them, thus making it possible to carry a very heavy load on the trailer without overloading the truck used for motive power.

The trailer was designed to safely carry a maximum uniformly distributed load of 35 tons, and the complete unit weighs approximately 5 tons.



Gigantic Truck and Trailer, Designed and Built by the Acme Motor Truck Company, for the Jennings House-Moving Project

North Carolina Far Ahead With Road Program

By awarding contracts for 29 road projects on August 30, the North Carolina State Highway Commission brought its lettings this year to 1114 miles, or 114 miles more than the goal of 1000 miles set for 1922. The total cost of the new road construction authorized in North Carolina during the first eight months of this year will exceed $22,000,000 on nearly one-half of the $50,000,000 provided by the state for roads during the first five year period.

With these last awards North Carolina has set up a record for road building for one year that has never been equalled. Since January 1, contracts have been let for 568 miles of hard-surfaced roads—principally asphalt—and 546 miles of gravel roads. The state road program inaugurated in 1919 is about half completed, since 2700 miles of new roads are now completed or under contract. In addition to this mileage the North Carolina system includes many miles of good roads built by the counties.

Here's an Answer to the Flat Rate Critics!

This Concern Also Has a System of Handling Electrical Equipment Repair Parts Which is Some Time-Saver. It Also Has Settled the "Pirate" Parts Bugaboo

By C. P. SHATTUCK

IT is contended by some electric service stations, particularly those officially representing and servicing a large number of standard units, that the flat rate for repairs and replacements is not entirely satisfactory, and various reasons are advanced. One of the principal objections heard by the writer is that the owner caring for his electrical equipment is penalized since the charge for his work will be the same—flat rate—as the owner who does not.

That the flat rate on all work, replacements, etc., is successful and entirely satisfactory to the owner, is proven in the experience of an electric service station in Augusta, Me. This concern is a member of the A. E. S. A., and has used the flat rate method long enough to give it the acid test. The claim that the owner, the careful man, is penalized by the flat rate is not substantiated, for whenever possible the careful owner receives the benefit of his caution. The really careless owner pays. And if the cost be emphasized to him is it not educational? After all, no system will ever balance the owner who abuses and the one who does not, but the writer believes that the pocketbook or cost education will be resultful. The owner or driver who will not heed warnings should be made to pay and pay well. There will always be with us many of this type. Sympathy is wasted upon them.

Entrance to Webber's Auto Electric Service, Augusta, Maine
The station is 26 ft. wide and 32 ft. deep, but a large amount of parts, etc., and equipment are contained by ingenious storage methods

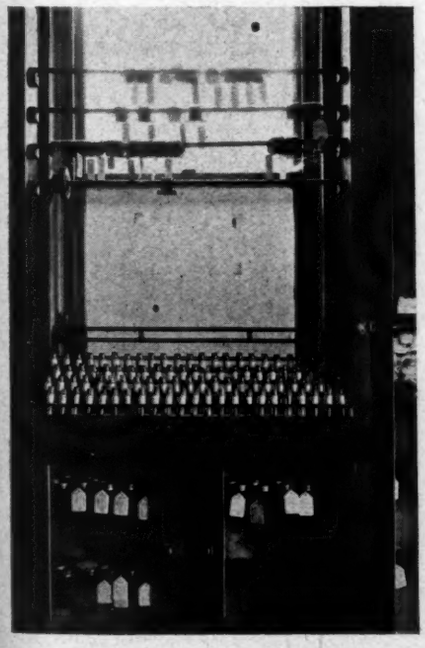
Are You Accomplishing as Much?

In addition to being successful with the flat rate this concern is accomplishing two important things. First, selling the trade and the dealers in their territory on the points that their customers will be better and more cheaply served if electrical units were serviced by experts with tools and equipment which insure the best results at the lowest labor charges. Second, which is of interest to the manufacturer of electrical equipment for the car, is combatting the tendency of the trade and owner to use "pirate" or substitute parts. The company, Webber's Auto Electric Service, has been successful in this respect and one of the firm advised the writer that he is not now solicited by makers of substitute parts.

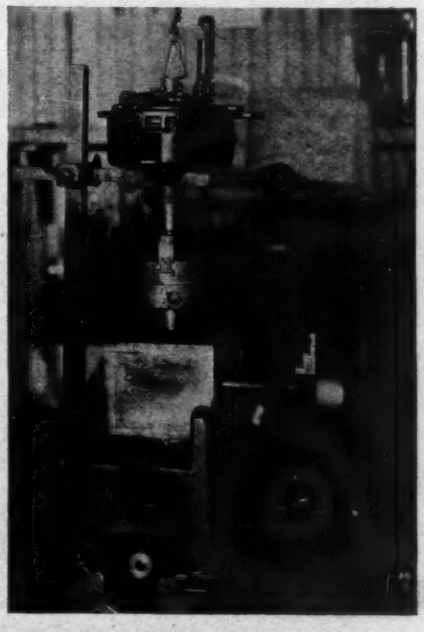
The campaign for use of genuine parts was not successful in a few weeks or months. It took time to prove to the trade and owners that genuine parts are the best investment in the short and long run. Form letters, bulletins, etc., and even personal calls on the dealers were employed. One of the latest efforts is the card reproduced herewith. It is termed a "Special Offer" and 500 of these were sent to the garages, service stations and repair shops in the territory.

These places have been interested by a service co-operation. All data dealing with the equipment, sent out by the maker to the company, is sent to garages, etc., and the information explains to the repairman how the Atwater Kent open and closed circuit types differ, for example. The repairman and dealer is informed as to what parts are interchangeable, thus enabling him to facilitate his service. The information includes cost data, adjustment of contact points, proper spark plug gaps, etc. The Webbers offer to supply all information on electric units, shipping on same, how to order, etc.

In the territory there are still some garages where the unqualified mechanic will attempt to repair generators and



The Bendix Drive Springs Are Slid Over Rods Between the Windows



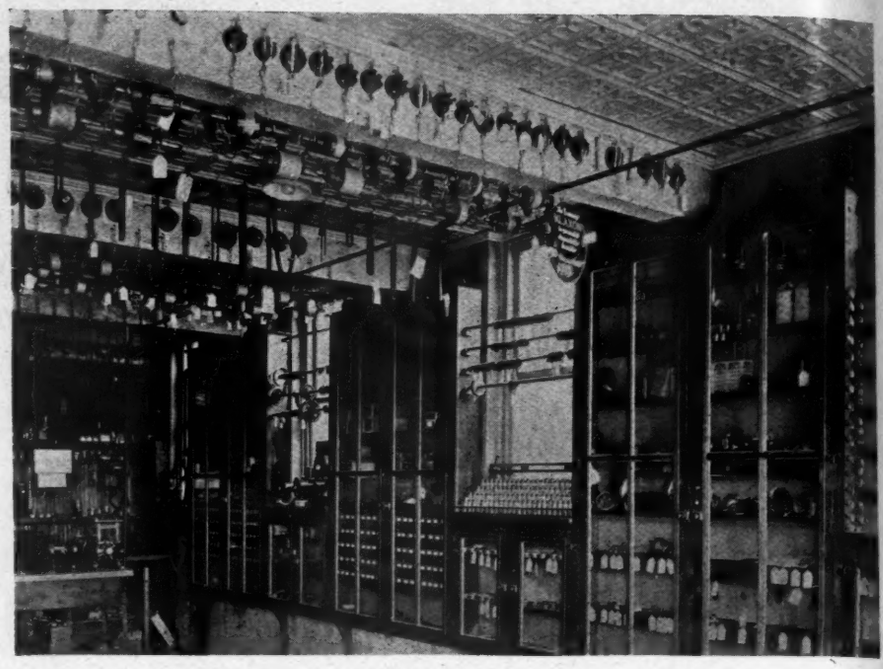
Another Device for Testing Distributor-Timer With Coil in Test Stand

starting units, work that requires skill and experience. It is said that the bill and results are not satisfactory to the owner, and the Webber boys are working strenuously to sell these places on the importance of serving their customers better and cheaper by having the work done by trained men. The trade receives a discount on parts, but none is given on labor, nor should it be, although it is a practice in the trade where work is sent outside. Effort is also made to have garages, etc., send in units during the winter overhaul work of chassis.

How Business is Given a Lift

The garage, repair shop or dealer is aided in the substitute parts campaign. When a dealer orders a part, for example, a breaker arm of the Connecticut system, the Webber boys employ a small tag, reproduced herewith which bears a warning as to imitation parts. At the bottom of the tag is left a blank space for the dealer's name. A rubber stamp is employed to stamp the dealer's name so that in the event this dealer in turn ships the breaker arm to a customer or a subdealer, the message about genuine vs. imitation parts is put across. The using of the dealer's name is a bit of sales pyschology on the part of the Webber Company.

Inasmuch as there is a guarantee on the parts also on work done by the Webber Company which will be explained later, it is essential that some record be maintained of the work, etc., as a matter of self-protection to all concerned. A manila card, one section of which is 8 x 4 in. and the other 7 x 4 in., is employed. The larger card is in a tag form and bears a serial number, the tag being detached after the work is done and is delivered with the job. It has on one side the name of the mechanic who did the work, also that of the tester. The other side bears a pertinent message. The other section of the card, which is torn off, is a complete record of the transaction and, as may be noticed, there is a space for recording the approximate gross profit on the job. The cards are self-explanatory and filed away for reference. If necessary complete details of the transaction can be ascertained in a few seconds. The data is valuable where "come backs" occur or claims are made, and claims always will be made.



Showing How Space is Conserved by Suspending Armatures, Distributor Caps, Etc., From Rafters and Ceiling

A section of a side wall shows how every inch of space is used

The next interesting feature of this service station is that no inventory is made nor a perpetual form maintained. At first thought it may strike the reader as a very lax plan and that the Webber Company must run its business rather on the scrambled egg order, but such is not the case. The Webber boys, Leigh and George R., started about three years ago in a tiny room in a building with a capital of about $400. Access to the room was by a ladder. Today these boys have one of the best appointed service stations the writer has ever inspected, and their stock of parts, etc., will compare with any electric service station in the big cities. The business has been built without the assistance of outside capital. The profits have been reinvested in equipment and parts. Parts for all ignition systems and electrical units are carried, except for one make of magneto, for which a partial supply of parts is carried. Service is rendered on this particular make of magneto as the Webber Company services trucks of the State Highway Department, thus equipped, as well as trucks using both magneto and battery ignition.

One of the Test Stands and Work Bench

Note the diagram book on desk, reels of wire overhead and location of telephone so that two departments may use the same phone

Where a Stock Clerk is Non-Essential

The inventory, if it can be called such, consists of a tag which gives the part number, list price, handling charges or war tax, total, description and salvage value. These cards are tied to each part and a rubber stamp employed to mark the name of the make, such as Bosch, Conn., Remy, etc. When a mechanic needs a part, let us say a complete breaker assembly for a Bosch magneto, he goes to the case of parts, picks out the unit, installs it, then turns the tag into the office.

There is no stock clerk for, as pointed out, the workmen just help themselves. Now the reader will say that the Webbers must have some losses in parts, but they do not for they have checked in times past and the books balance despite the factor of the human equation. The crew of the shop, and there are six, are as much interested in the success of the company as the Webber boys, for the men are practically share holders. A bonus plan keeps the men interested in the success of the

SPECIAL OFFER

WE KNOW that you realize the advantage of using only Genuine Ignition Coils, heretofore the trouble has been that it was not always as easy to procure the real article as it was the imitation. We carry in stock a large quantity of Genuine Coils for DELCO---REMY---CONNECTICUT and ATWATER KENT. We can and we do make prompt shipments and to prove to you that we want your business on coils and other electrical parts we will not only give you the best discount but we will also send you without charge on any order for coils either a

DELCO CONTACT POINT WRENCH
BOSCH " " "
REMY " " "

PLEASE STATE IN YOUR LETTER WHICH WRENCH YOU WISH

In ordering coils or other parts always state year and model of car and number of cylinders. In the case of Bendix springs send in the broken spring if possible.

Remember we also maintain one of the most complete testing laboratories in the state for testing Generators, Magnetos, Coils, Ignition Distributors and Starting Motors and are prepared to give you first class electrical service on practically any make of Auto Electrical Equipment.

We repair Bosch Armatures *and ship the same day.*

Our Prices are Reasonable and our service is prompt

Genuine Ford Generator Parts
Eclipse Bendix Drive Parts
Atwater Kent Ignition System
Dixie, Bosch and Eiseman Magneto Repairs
Delco, Klaxon and Remy Parts and Service
Westinghouse, Auto-Lite and Connecticut Service
Briggs and Stratton switches and Switch parts

Webber's Auto Electric Service
10 DICKMAN STREET AUGUSTA

FACTORY PARTS AND SERVICE
Delco---Klaxon---Remy
AUTHORIZED BY
UNITED MOTORS SERVICE
INCORPORATED

These Cards, Heavy Manila, 7 x 10 in. Have Been Sent to 500 Garages, Repair Shops, Etc., to Educate the Trade to Use Genuine Parts and Good Service

business and its profits. The Webber boys believe the average person is honest and their policy has been successful, they say. And this brings up the point that there are no bosses. Each man has certain work in which he specializes and goes about it without any fuss, waste or lost motion. Each man finds work to do. It does not have to be laid out for him. During the writer's visit he failed to see any member of the organization killing time. The non-productive labor is nil. Giving the boys a share of the profits is the best incentive. It is doubtful if a new man would get by in that shop unless he was 100 per cent loyal and knew his job. The other boys would see that he got the "can tied on" if he failed to make good.

Reduction of Overhead Big Item

While the exact per cent of the overhead was not obtained by the writer, he was given to understand that it was lower than in the average service station transacting an equally large volume of business. Its low overhead is attributed to the elimination of clerical inventory cost, parts ordering, foremen, etc., all of which are deemed essential by the average shop. The writer is not advocating similar methods in every shop. In some cities it would be suicide to attempt the plan, but the idea of the bonus plus trustworthy employes is worthy of thought.

While the bulk of the business is with passenger cars a large volume is with trucks. It should be borne in mind that the Webbers service a territory of 25 miles from Augusta, and they claim that their service and stock is second to none in New England and that is some claim when it is considered that Boston and other large cities in the New England States have big electric service stations. Also that in the Augusta territory the big truck, 5-ton and even 3's are the exception. The majority are of the ton and even smaller capacities, many of which are using the battery as a source of current supply. This requires a battery service and a service on ignition including Remy, Connecticut, Delco, Westinghouse, Atwater Kent, Bosch.

Road service is rendered the trade and customers, a service wagon being utilized for roadside repairs. There is some free service rendered. It includes inspection on new equipment, on cars and trucks, on new parts or units installed. Adjustments and tune-up are free. New cars are supplied with a spare fuse free. Effort is made to have the owner of a new car or truck come to the service station for inspection and adjustment and lubrication. The labor on this work is charged up to advertising so it is really not a free service, only in that sense to the owner. This plan has built a close contact between the owner and the service station, is a great aid to the dealer selling the car for it relieves him of the guarantee or warranty on the electrical equipment which is not covered by the maker of the car or truck. The service also enables the Webber Company to sell its battery service and to obtain prospects for electrical work as well as to sell equipment which the car or truck may lack and need. Mention of this equipment merchandising was made in the September issue of the COMMERCIAL CAR JOURNAL.

Satisfy the Customer Policy

In connection with the service rendered on new equipment and that rebuilt or overhauled, it is the policy of the Webber Company to stand in back of it although the customer may be at fault. For example, while at the service station a customer, when asked about the service, said he was very much pleased with it. It appears he had a new part installed in a unit and through his fault damage resulted. A repair and replacement was made free. This, too, was charged to the advertising department. This example indicates how a concern can cash-in on advertising of satisfied customers.

Mention was made of the salvage value of a unit or component part. Those which can be rebuilt to give satisfactory service, including generators, starters, magnetos, etc., are collected during the summer or busy season for the salvage department and the work mostly performed during the cold weather. These are used to exchange and to accommodate the tourist trade. The units are sold as rebuilt and with a guarantee. They are also serviced. (*Concluded on page 69*)

One of the Features of the Station is the Use of Revolving Cabinets on Work Benches
The tools are placed on the exterior of cabinet and interior used to store shellac, etc.

Parts Makers See the Need of Better Distribution and More Profits

See a Big Market Looming Up in the Replacement Field. Optimism and Confidence Expressed by Every Speaker. 1923 to be Banner Year in the Automotive Field

ONE thing is certain and that is, that those parts manufacturers who attended the sixth annual convention of the M. A. M. A. at Buffalo, came away with the feeling that business from henceforth is going to be very good. The last half year has witnessed a remarkable improvement in the credit situation and the only problem before the parts manufacturers now is how they can increase their profits and better distribute their products.

It is a well-known fact that the parts manufacturer in many instances has been responsible for the salvation of many passenger cars and truck builders. Many of these, but for the whole-hearted co-operation of the parts manufacturer, would have been forced to close their doors during the past year. But things are different now.

The accumulated stocks have been released and the parts manufacturers as a whole are not worrying much about how they can increase the volume of business they are now getting as they are about the profit they are making.

Incidentally it may be mentioned right here that the convention gave most of its time and discussions over to the passenger car rather than truck problems. Although problems which were discussed seemed to relate mostly to the passenger car, the reader must remember that the parts manufacturer is a purveyor of material to both branches of the industry, and for many parts manufacturers the truck market provides the major outlet for his product.

Replacements Growing Outlet

The better type of dealer; the used car problem; the limitation of credit to new concerns; that prices of vehicles are going up rather than downwards, were subjects that were touched upon by more than one speaker. The significant point of the meeting was that there is plenty of business in sight and that the saturation point is something which will never materialize. Furthermore, the replacement market is becoming of such proportions that the parts manufacturers will gradually find his profits from this source as great and greater in some cases, as from sales to the vehicle builder.

The feeling in general was that the vehicle manufacturers had done the right thing in lowering prices to stimulate sales, but that this process has gone far enough. Any further reductions could only be consummated by drastic reduction in quality of materials, which of course is not sanctioned by the vehicle manufacturer and the parts maker who proposes to serve the public in years hence.

In his address on "Integration and Mergers in the Automotive Industry," C. A. Dana, president of the Spicer Manufacturing Co., voiced the opinion of many of the leaders in the parts field when he said:

"We are selling on a very close basis to the automobile manufacturer and the automobile manufacturer is simply taking our figures and adding them together into a simple cost and putting a certain profit on and passing it on to the public—but we are not the gainers. We are not getting a legitimate profit that warrants us being in business in a great many instances.

"Too many companies," continued Dana, "are devoid of working capital. The tremendous shrinkage in inventory values had to be taken out of either the undivided profits of the company, the surplus or through a sale of some form of investment or securities. The result is that some companies have not sufficient working capital. It may be due somewhat to lack of sales experience.

"This year's production should exceed 2,000,000 cars and trucks."—Reeves.

"More attention should be given both by truck and passenger car manufacturers to better sales, more permanent sales, and better distribution."—Dana.

"The motor bus market; selling cars to women as a class; the rural school system, and the light delivery field are yet to be thoroughly developed."—Clark.

Attention!

"More attention should be given both by truck and passenger car manufacturers to better sales, more permanent sales, better distribution of both cars and trucks. It may have been caused somewhat by a greater quantity of different name plates of passenger cars and trucks than there is a demand for. It may have been caused by bad judgment, but the fact remains that today there is a lack of working capital.

"We who sell to those companies have to decide as to what we are going to do with them, because we are in a position of the owners of those businesses. I am speaking very frankly about this, because I think it is a serious matter that we, who are in the parts branch of the industry, are the owners of a great many of the truck and passenger car manufacturers even though we do not have the shares of stock in our names.

"We should recognize that so that we may lend every endeavor that we have and every thought that we have and all our experience to help to show them how they should sell, to help show them how they should finance their immediate requirements in order to liquidate some inventory that they already have on hand. We should show them how they may operate at lower costs and with a reduced labor cost, and how they, perhaps, should change their design so that the article that we are contributing to may be more merchantable and more salable.

"That has led us to the creditors' committee which was not known some time ago. They used to go into receiverships."

On the subject of mergers he said: "There are two necessities for mergers: One is the financial necessity, in which one company needs the support of another company that is better financed, or they will secure financial assistance by making the proposition larger so that the securities are more marketable."

Conference Divided Into Sessions

In the absence of E. H. Broadwell, president of the association, general manager M. L. Heminway presided. The conference was divided into group sessions such as the Advertising Managers' Council, the Export Managers' Meeting, the Traffic Managers' Meeting and General Credit Session. In all of these conferences informal discussion was encouraged, usually based on the previous speeches and led by a Council member.

Mr. Heminway briefly reviewed the work of the M. A. M. A. during the past season, calling particular attention to service rendered by the traffic department under the management of Herman Deuster. During the two years of its existence, this department has rendered much valuable assistance to its members in solving traffic problems, and has submitted 40 reclassification briefs which have resulted in lower rates on bodies, wheels, etc. The work of the Credit Department of the M. A. M. A. was reviewed by C. A. Burrell, manager of the Credit Department of the association.

(Continued on page 74)

Can Gas Truck Dealers Profitably Sell Electric Trucks, Too?

Many Dealers Have Taken It for Granted That Electric Trucks Are Competitors of Gas Trucks and Therefore Haven't Considered Electrics as a Possible Way of Increasing Sales and Profits on Both Their Gas and Electric Lines

MANY gas truck dealers have looked on electric trucks as competitors, just as they consider all other gas trucks competitors to the line they are handling. The increasing interest in electric trucks and the fact that they are displacing horses on routes where gas trucks have not been able to break in very often—such as house-to-house milk delivery—have brought this question to a head and this makes it worth while for a dealer to consider whether he can increase not only his total business and profits, but also his gas truck sales by handling electrics for routes for which they are particularly suited.

It is worth taking a new look at the subject.

It is known from statistics that nearly 70 per cent of all the motor trucks sold last year were one ton or less. Of these light delivery trucks it is estimated that approximately two-thirds were sold by one maker.

Therefore two things are evident: Unless your line of gas trucks includes light delivery cars, you are out of the running on 70 per cent of all truck sales, and second, unless you have the franchise of the leading maker you have to compete with all the other gas truck manufacturers for the remaining thirty odd per cent of the sales.

A third point is that there are numerous places where the horse has been winning out repeatedly in both time and operating costs against gas trucks and, yet, on these very same routes electrics have been breaking in against the horse.

Now let's suppose that your line of gas trucks doesn't include models of 750 lb. to a ton. Then it will pay you to look into electrics. And obviously, there will be no competition with your present line.

Or let's suppose that you have a line of very high grade gas trucks with perhaps ¾-ton size at a high price. The chances are you are selling this ¾ model for longer hauling and that the short-haul and frequent-stop routes are getting away from you. Again, it will pay you to have light electrics, and you will not be interfering with your lines of gas trucks. In fact, you will be able to control that.

As for your heavy sizes, if you are not successful in selling them for frequent-stop or short-haul city work, but are selling them principally for longer routes and deliveries to outlying towns, it again will pay you to have electrics in the larger sizes for the business you are not getting at present—business that is probably going to horses, and again you can control the situation selling your gas trucks where they are right and selling electrics where you are losing out at present.

In the Milk Delivery Field

Take, for instance, the case of house-to-house milk delivery, referred to in the August COMMERCIAL CAR JOURNAL. Milk dealers and horse advocates have repeatedly boasted of the supremacy of the horse in this field, claiming a saving of time because the horse knows the route, and a saving in operating costs because of the frequency of stopping and starting. They have argued house-to-house delivery is a severe and costly kind of delivery on gas truck mechanism—whether the drivers let the engine run or consume a lot of gas stopping and starting at each stop—not to mention the time it takes.

The electric truck has gone to the mat on house-to-house milk delivery, and has demonstrated in stop-watch tests compared with horses that knew the routes, that electrics can save time in comparison with horses, not only because the electric gets to and from the route in less time, but due to the fact that with the horse **the driver walks his route,** whereas with an electric he can stop quicker, get away quicker, and he drives his quarter, half-block and block runs between deliveries. The saving in time has been as great as 1¾ hours on long routes and 15 minutes on short trips in house-to-house milk delivery, enabling drivers to take care of approximately 20 per cent to 25 per cent more business and that means more money for the driver, and more money for the milk dealer. And when the electric stops, the motor stops!

If you have a line of electrics, you're not hurting your gas truck sales to go after the milk dealer—what you are doing is beating old "Dobbin" to it, and increasing your profits.

Or take the bakery field. Most bakers have some gas trucks for the long routes and delivery to nearby towns, but the majority of their frequent-stop city routes are being covered by horses and wagons (or electrics).

Because of the first cost of electric trucks, there is a very good profit on electric fleet sales, and such profits have been escaping gas truck dealers for years.

The dealer who carries both gas trucks and electrics will find this difference. On the gas truck, the first cost is lower and he makes his profit out of servicing through the years of use. With the electric, servicing is a minor element—repairs are few and far between. But the first cost is higher, and between the chassis and the battery he gets a big profit as soon as he completes the sale. His investment in parts is remarkably small, and, therefore, a gas truck dealer in adding electrics to his line does not have to figure on much of an investment outside of his investment in chassis and batteries for demonstrating purposes.

An increase in gas truck sales through having both is also a possibility because if you break in against the horse on short-haul or frequent-stop routes through electrics, it is a whole lot easier to sell gas trucks to the same customer for the longer routes. It also puts a dealer in a rather unbiased position. He can say: "On these short-haul or frequent-stop routes electrics will save you money compared with horses and on these longer routes gasoline trucks are the thing to use. I sell both and I am making what seems to me a sound recommendation for your needs. You can take your choice."

The very fact that he has both adds weight to his statement.

Taking into consideration the vast number of routes still being covered in this country by horses and wagons, it seems as though it is worth a dealer's while to look into electrics as an extra source of profit.

To Editor
Commercial Car Journal:

I have noted with interest the recent articles on electric trucks by Mr. Shattuck. I have often wondered why gas truck dealers, particularly dealers in higher-priced trucks and large-size units, have looked upon electric trucks as a competing line. It seems to me that if I were a gas truck dealer, I would handle both gas trucks and electrics, using the electric trucks to get business on short-haul and frequent-stop routes that are now being covered by horses and wagons, thereby adding to my profits without decreasing my sales of gas trucks—as I have endeavored to point out in the enclosed statement of the case.

EDGAR PARKER.

What Plans Have You Made for Winter Business?

Is Your Answer: "Why None, as Yet, It's Too Early"? This Alibi Will Lose You Money. Get Started Now and be Prepared to Tear Off Your Share of Winter Business When the Real Cold Weather Sets in

By C. P. SHATTUCK

J. G. WILKINS, head of the Pawtucket Motor Truck Company was peevish. Jimmy, his chauffeur, couldn't be located. The car was in the service station, but Jimmy had apparently disappeared. J. G. swore he would fire him, but no one took J. G. seriously. He had been discharging Jimmy on and off for the past five years and Jimmy was disappointed if he wasn't threatened with loss of his job at least every fortnight.

After waiting an hour for Jimmy the distributor of the Pawtucket truck called the cashier on the telephone and advised him that he was to give Jimmy two weeks' pay and let him go. "And if that rascal asks for references tell him they are zero from me," barked J. G. But the cashier said alright and promptly forgot it. He knew well enough that J. G. would be buffaloed by Jimmy. He simply ignored his discharges and went on his way as if nothing had happened.

J. G. Loses His Grouch

J. G. was analyzing his sales reports of the various departments and being in a peevish mood he found conditions unsatisfactory. "About time I put some pep into these boys," soliloquized J. G., and he reached for the desk phone to summon head of equipment department when some one rapped on the door of the private office. "Come in," barked J. G., but when he saw his visitor he shed his grouch like a duck's back sheds water. The visitor was Tommy Williams, J. G's ex-star salesman who had taken over the Providence truck and put it on the map north of the Pawtucket territory.

J. G. was mighty well pleased to see Tommy for the latter was a favorite of the old man so much so that rumor had it that Tommy would come in for a niece piece of change when J. G. departed this sphere. J. G. was an old and confirmed bachelor with none but distant relatives.

"Well, well, Tommy," remarked J. G., "I'm mighty glad to see you my boy. It's seldom you run down this way, but I suppose you're busy these days. How's the youngster and the wife?" Upon being advised both were fine and that Mrs. Williams sends her kindest regards and an invitation to spend the week-end, J. G. was in good humor once more. J. G was godfather to Tommy's heir. Tommy proceeded to tell stories about his boy while J. G. listened with interest. When Tommy said the kid's favorite toy was the miniature Providence truck that J. G. had had constructed for him, J. G.'s cup of happiness was overflowing. "Must run up soon and see the boy," said J. G. "Try to make it this week."

Tommy Preaches Optimism

No two truck dealers can long keep off the shop talk and Tommy and J. G. were soon discussing the truck industry, the present conditions and outlook for fall and winter business. Tommy was optimistic. He said he expected one of his best winters, that the farmers were optimistic. Tommy relied upon the agricultural trade for his bread and butter. J. G. was not so optimistic, and to back up his statements picked up a bunch of reports from his different departments and, selecting that of the service station and equipment department asked Tommy if he saw anything to be cheerful about. Tommy glanced over the records and said they were not bad but could be better. His departments were doing better than that, he said. Billy Stebbins had worked up quite a campaign on equipment business which was going well. Perhaps J. G. might be interested. He was and he pushed the buttons summoning the heads of the equipment and service departments to the office and opening the humidor and passing around the cigars said, "Let's have the dope, Tommy."

"Oh, well," said Tommy, "there's nothing much to it. You see Billy Stebbins is a live wire and is responsible for all the ideas which go into our service and equipment sales campaigns. Billy was brought up on the farm and like all country boys learned to anticipate the seasons. Early this fall or late in the summer he got out a campaign for service for fall and winter work. He worked up an inspection schedule, listed the adjustments needed for cool weather such as carburetor, ignition, lubrication, battery, etc. What he did was to list up all trucks in service and divide them into various classes such as 1-ton with battery and pneumatics, the 2-ton and so on up to our heaviest type.

"Billy got up a snappy letter to the owners in the various types, a different one for each class, and pointed out to them that their engine would start more easily, use less gas and oil if the battery was jazzed up, the ignition unit cleaned and adjusted, the carburetor set for cool weather and a lot of dope along these lines. Bill offered to do much of the work free of charge. Asked the owner to set a date when he could come in and then checked up the replies which were on return stamped cards.

"Now some of the farmers were too busy to come in, so Bill followed these and others up on the telephone and arranged to send a man out to the farm to do the work."

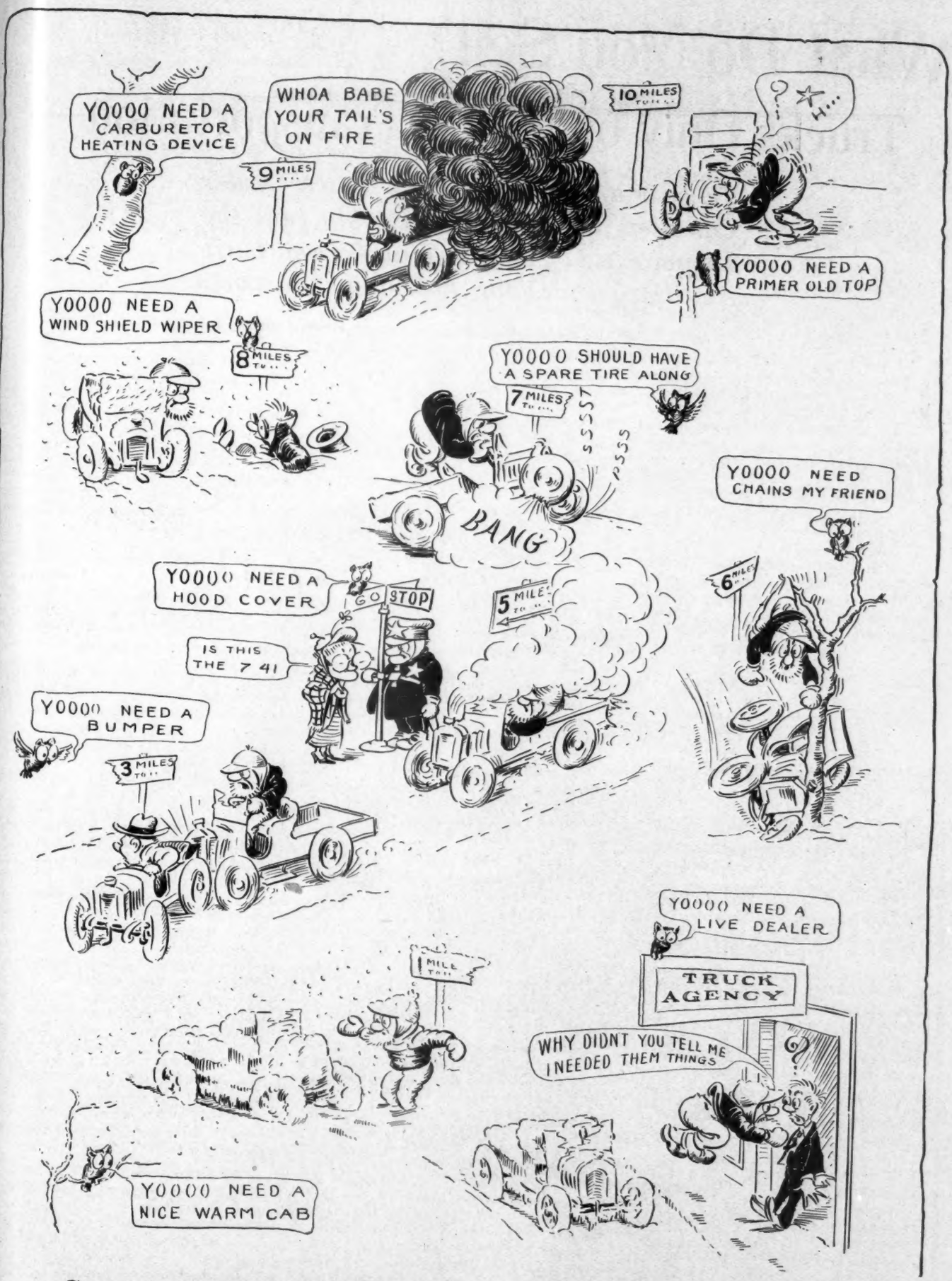
"Can't see anything in that," said J. G's service head. "All free stuff which does help swell the dividends from a service department."

How Service Sold a Truck

"No," came back Tommy, "there wasn't any profit in the free service, but the cost of the service I charged to advertising and credited the service department with labor at regular rates so they did not lose anything. What the simple stunt did accomplish was to get the Providence trucks running like clocks and the farmers talking about that service all over the country. Why I trace one unexpected sale directly to the service. There was a farmer whom we have been trying to sell for some time; one of those mail-order fellows. He dickered on price and wanted to trade in an old wagon but nothing doing. Well, this chap got a salesman of the Blank truck on the string and he came out during that cold spell we had, to show off his truck. He left it in the north wind and while he was dickering the engine got real cold. When the salesman got ready to start he just cranked his head off.

"Old Bill Johnson, next door, owns one of our trucks, and told me the story. It seems that the prospect got cold feet when he saw the expert had trouble so after the salesman left, Bill called his neighbor over and showed him where our truck had been standing in just as cold a place for three hours. Bill said, 'watch me start her,' and he gave her two turns and off she went. Bill then praised our truck and service to the skies and told his neighbor that it was cheaper in the end to pay the list price and get the difference in real service and low costs. We sold that prospect."

(Concluded on page 51)



Somebody Forgot to Sell Him Winter Equipment

—As Our Artist Sees It

What Do You Sell?

Trucks Only or Motor Transportation—

There is a Difference. The Truck Dealer Can Step Easily and Profitably Into the Larger Field by Selling Tractors and Their Auxiliary Units for Industrial Purposes

By H. M. CRAIG, General Sales Manager Samson Tractor Company

THE truck dealer who wants to—and he should—sell commercial transportation in its broadest sense, has another very important line to consider besides trucks. Trucks are only part of the motor units in that business; the other part is composed of tractors, tractor trailers and other tractor accessory units, which, for economic reasons, are becoming so popular in industry.

Just pause a moment to consider what transportation in this vast country means. From the time raw products are gathered until they reach the consumer in finished form, American industry spends a large percentage of its energy in hauling. The railroads are the great primary movers—that is, they are supposed to be. The motor truck is of next importance. But fitting in between, and on all sides of these great transportation agents, the tractor comes for its share of the job. For certain kinds of hauling and utility work concurrent with manufacturing, the tractor cannot be beaten: its field for such work is large and practically untouched. There is also an enormous growing demand for the tractor in construction and development work. The public has been accustomed to look upon the tractor as belonging to the farm field alone. It now recognizes that the tractor also has a real value in commercial and industrial life; just as it heretofore has appreciated the horse in both agriculture and industry.

The commercial uses of tractors include all those exclusive of actual farm operations. A list of such uses follows. Check this list as you peruse it and you will be surprised at the large number of operations that are taking place in your territory right now offering tractor opportunities.

Construction and Development Work Uses:

- Land clearing
- Excavating
- Leveling, terracing
- Scraping, grading
- Hauling building material, construction equipment
- Auxiliary power for helping trucks onto highways
- Moving dirt from "cut" to "fill"
- Drilling
- Operation of air compressors, hoisting drums, moving winches, pumps
- Pile driving
- Rock crushing
- Rock removal
- Concrete mixing
- Direct loading of dirt, coal, etc.
- Hauling loaders
- Ditching and filling
- Moving buildings

Miscellaneous Uses:

- Saw-mill operation
- Ice harvest
- Golf course maintenance, grass mowing, rolling, etc.
- Canal boat towing
- Wharf uses

Industrial Plant Uses:

- General hauling about the plant by trailers; hauling lumber, coal, foundry materials, castings; interdepartmental transfer of partially finished products; etc.
- Delivery of finished product by trailers
- Shifting freight cars
- Dragging bars, castings, beams, logs
- Hoisting
- Operation of movable winches
- Loading coal, sand, etc.
- Emergency power plant

Municipal and Road Uses:

- Hauling garbage and ashes by trailers
- Street cleaning
- Snow plowing and snow removal
- Street sprinkling
- Road oiling
- Road construction
- Road maintenance, including scarifying, smoothing, scraping, grading
- Hauling heavy city equipment
- Park maintenance

New uses for the tractor are developing every day. Some of these are certain to cut in on truck sales. But this should not trouble the truck dealer who has gotten into position to sell commercial transportation; he can welcome the tractor, its trailers and other auxiliary units as the step into the bigger field with a bigger business, netting more profit with but little increase in overhead.

In considering this step, the dealer should not be influenced only by the profit per sale. Dealers' discounts on tractors, trailers and accessories are good. The net profit per unit is important, that is true; but it is not the whole story. Why does the druggist handle paints and oils, materials which, by commodity rules, do not belong in the drug business? The druggist has discovered that he can net an additional profit from the sale of paint without greatly increasing his costs. He is drawing to his store two classes of purchasers; those wanting paint, and those wanting drugs. It results in a fair opportunity to sell from his whole line to either one of these classes and he keeps his eye on his business as a whole, rather than being influenced by individual profits only. This means principle should apply to tractors and trucks.

Selling trucks and their accessory units for commercial uses is simply rounding out the line with units that rightfully belong with trucks, and the public looks to the truck dealer as the logical merchant to handle all motor units for commercial transportation. While the truck dealer or his salesman is working up truck sales he can uncover tractor prospects, and vice versa. This carries a less cost per unit than is met by the dealer who handles only a truck or tractor line.

Trucks and tractors are not competitors in the commercial field any more than in the agricultural. Each has its own work for which it is especially adapted. Many trucks are being sold by purely truck dealers where tractors and trailers would be more successful from the standpoint of service, efficiency and operating costs. Likewise, the tractor dealer is slipping in some sales where trucks should be sold. If there is no natural competition between the products, there is less excuse for the existing, artificial competition that bewilders the prospect by two kinds of dealers working upon him, each with his particular claims.

The dealer handling both trucks and tractors can sell either the one or the other, or both, according to the requirements of the transportation problem; the consumer is served better, and the dealer does not run as much risk of losing all or part of the sale.

Resales Are Equally Important

Thus far first sales only have been discussed, but resales are also important. By including the tractor the resale possibilities on all units increased. This increase is felt also in the accessory and service departments. Expanding the line by the addition of similar purposes increases contact with the trade which in

(*Continued on page 70*)

EDITORIALS

Classifying Branches of the Industry Definitely

THE various departments at Washington, and in fact the larger trade associations in the automobile industry, have experienced a great deal of difficulty in giving names to all classes of products which would be generally understood by the trade and public.

At a recent meeting held in Washington, sub-classifications of Class 7929 (Passenger Cars, Parts of, except engines and tires) were agreed upon as follows:

Unit Assemblies
Parts and Accessories
Service Equipment.

The list has a comparatively new classification, and one which should receive universal support in order that there may be uniformity in the titles when describing tools and light machinery used in the repair of automobiles.

Heretofore, various terms have been applied to such devices, including Shop Equipment Tools, Service Station Equipment and many other similar —though not uniform—names. The adoption of the title: "Service Equipment" to apply to the tools and light machinery used in shops for servicing cars is a step forward in classifying these products.

It would be well for the trade generally to speak of such tools as Service Equipment and it would be advisable for the manufacturers of these devices always to refer to them as "Service Equipment," and for jobbers to classify them separately in their catalogs under the heading "Service Equipment" and to teach their salesmen to refer to these devices by this uniform name.

A Sure Way to Kill Business

ONE axle manufacturer, who recently made an investigation tour from the middle west to the Pacific coast, visited this office and cited a number of cases, which show that some truck manufacturers have not yet realized the importance of keeping repair parts at the lowest price possible.

He found numerous cases where the truck dealer was forced to charge practically 100 to 300 per cent above the price at which the part was sold to the truck manufacturer. This certainly is not conducive to repeat orders. The truck owner who has to pay high prices for parts usually buys another make of truck the next time. It encourages the gyp parts dispenser. This axle manufacturer believes that the truck manufacturer's profit should not be more than 50 per cent—not from 100 to 300 per cent.

In one instance he found a dozen trucks which had been discarded by their owner because of axle trouble. The owner was asked why he hadn't repaired them. The owner stated that the overhaul price asked by the dealer averaged $500 per truck. The axle man took the matter up with the dealer who frankly admitted he could not do the job for less and break even, because of the high price he paid the factory for parts.

We suggested that this may be an exceptional case, but our visitor related other instances quite as bad. He also thought that this situation was responsible for the lack of interest some dealers are showing in the truck field.

This may be old stuff with many factories, but the fact of the matter is that many factories have done nothing of any importance to change the situation. It is one place where the factory can show the right kind of co-operation.

The Freight Car Shortage

SINCE the settlement of the strikes, freight cars have been absorbed at a tremendous rate. The average freight car shortages exceeded the average surplusages during the week ending September 8th for the first time since November, 1920, by 24,731 cars. During the week ending September 15th, the shortages exceeded the surplusages by 62,937 cars.

At the present time there are about 94,000 automobile cars in service, while 7500 smaller cars are available for small automobiles. 12,950 new automobile freight cars are now being built on actual orders.

Which shows conclusively that the railroads are getting extremely busy and anticipating better business in most industries. The present freight car shortage with the greater increase in general business should give impetus to the motor truck industry, because the greater the number of freight cars in service the greater the number of motor trucks needed to haul to and from the railroad freight terminals.

News of the Trade in Brief

A Number of Price Changes in Truck Market

The following companies made changes in the price of their trucks since the last issue of this journal: Garford Motor Truck Co., Lima, O.; O'Connell Motor Truck Co., Waukegan, Ill.; Gary Motor Corp., Gary, Ind.; Defiance Motor Truck Co., Defiance, O.; Walker Johnson Truck Co., Woburn, Mass.; Watson Wagon Co., Canastota, N. Y.; Gramm-Bernstein Motor Truck Co., Lima, O.; Superior Motor Truck Co., Atlanta, Ga.; Oshkosh Motor Truck Co., Oshkosh, Wis.; Stoughton Wagon Co., Stoughton, Wis.; Fink Dumont White, Inc., New York City.

The new prices and other details can be found in the specification tables, pages 33 to 50.

Strikes Said to Have Curtailed Highway Building

The coal and railroad strikes, according to a report issued by the U. S. Bureau of Public Roads, are responsible for the curtailment of 15 per cent in the Federal Highway building program. When it is understood that, at this season of the year, when road-building is running smoothly, the Government and States are spending $105,000,000 a month, the full significance of the curtailment can be appreciated.

The effects of the strike, it is believed, will be even more pronounced during the next three or four months and officials of the bureau are of the belief that road-building may, of necessity, fall off even more than the 15 per cent already felt, with the approach of winter and the necessity of greater shipments of coal.

All Ford Plants Are Re-opened After a Short Shut-Down

All plants of the Ford Motor Co., have reopened after a shut-down lasting from September 16 to September 22, enforced, by the coal shortage and aimed, according to Henry Ford, at the prevalent coal profiteering and steel prices. The layoff affecting the larger manufacturing plants of the company and a number of smaller assembly and dependent units included about 100,000 men.

In reopening his plant, Mr. Ford explained that the order of the Interstate Commerce Commission, issued September 19, which revoked the stringent priority ruling, made it possible to obtain fuel of the necessary quantity and in the needed quantity—about 4000 tons daily.

Coming Events

SHOWS

October 16 to 20, 1922—Atlantic City, N. J. Accessory Show and Convention of the Automobile Accessories Branch of the National Hardware Assn. of the U. S. at the Ambassador. T. James Fernley, Sec., 505 Arch St., Philadelphia, Pa.

October 16 to 20, 1922—Raleigh, N. C. Automobile exhibit in connection with the 61st State Fair, tent exhibit. Passenger cars, trucks, tractors and accessories. E. V. Walborn, Secy., Merchants' Bank Bldg.

October 16 to 21, 1922—Jackson, Miss. Automobile exhibit by local dealers at Mississippi State Fair. Passenger cars, trucks, tractors and accessories. Mabel L. Stire, Secy.

October 17 to 21, 1922—Pomona, Cal. Automobile and accessory show of the Citrus Belt Auto Trade Assn., Los Angeles County Fair Grounds.

November 4 to 11, 1922—Pittsburgh, Pa. Electrical show at the Motor Square Garden sponsored by the Electric League of Pittsburgh.

November 13 to 18, 1922—Chicago, Ill. Annual Exhibit and Convention of the Automotive Equipment Assn. Celiseum.

November 22 to 29, 1922—Cincinnati, Ohio. Second annual automobile (accessory and radio show.) Music Hall (75,000 sq. ft.), auspices Cincinnati Automotive Trades Assn. Passenger cars, trucks, tractors, accessories and radio equipment. Jno. J. Behle, Mgr., 809 Gerke Bldg.

December 11 to 15, 1922—Des Moines, Iowa. 5th annual tractor show and 12th annual exhibition. Coliseum, 18,900 sq. ft. floor space. Trucks, tractors, and farm power equipment.

January 8 to 13, 1923—New York, N. Y. 2nd annual body builders' show at the 12th Regiment Armory, auspices of the Autobile Body Builders' Association.

January 6 to 13, 1923—New York, N. Y. Annual Automobile Show of the N. A. C. C., in Grand Central Palace. Passenger Cars and Accessories. S. A. Miles, Mgr., care of N. A. C. C., 46th St. and Madison Ave.

January 13 to 22, 1923—Oakland, Calif. Fifth annual show, Motor Car Dealers' Division of Alameda County Auto Trade Assn., Civic Auditorium. Passenger cars, trucks, tractors and accessories. Robert W. Martland, Mgr., 47 Pacific Bldg.

January 27 to February 3, 1923—Chicago, Ill. Annual Automobile Show of the N. A. C. C. in the Coliseum and 1st Regt. Armory S. A. Miles, Mgr., care of N. A. C. C., 46th St. and Madison Ave., New York City.

February, 1923—Charlotte, N. C. Annual automobile show of the Charlotte Automotive Trade Assn., Carolinas Exposition Bldg.

February 3 to 10, 1923—Minneapolis, Minn. 16th annual automobile show, auspices Minneapolis Automobile Trade Assn. Passenger cars, trucks, tractors, accessories. W. R. Wilmot, Mgr., 709 Andrus Bldg.

February 12 to 19, 1923—Portland, Ore. 14th annual show of Automobile Dealers' Association of Portland, Inc. Municipal Auditorium (36,000 sq. ft.) Passenger cars, trucks, tractors and accessories. Ralph J. Staehli, 424 Henry Bldg.

February 16 to 26, 1923—San Bernardino, Calif. Automobile exhibit in connection with 13th annual National Orange Show. Tent, Passenger cars, trucks, tractors, and accessories. R. H. Mack, Mgr., 215 Chamber of Commerce Bldg.

February 17 to 24, 1923—St. Louis, Mo. 16th annual show auspices of St. Louis Automobile Dealers' Assn. Passenger cars, trucks, and accessories. Robert E. Lee, Mgr., 3124 Locust St.

February 17 to 24, 1923—Akron, Ohio. 9th annual show of the Akron Automobile Exhibition Co., Central Garage (45,000 sq. ft.). Passenger cars, trucks, tractors, accessories. E. T. Jones, Mgr., 1091 W. Exchange.

February 28 to March 3, 1923—Syracuse, N. Y. 15th annual show at State Armory (43,000 sq. ft.). Passenger cars, trucks and accessories. Howard H. Smith, Mgr., 701 Eckel Bldg.

March 10 to 17, 1923—Boston, Mass. Annual show at the Mechanics' Bldg., auspices of Boston Automobile Dealers' Assn. Passenger cars, trucks and accessories. Chester I. Campbell, Mgr.

March 10 to 17, 1923—Newark, N. J. Annual automobile show of the Newark Auto Trade Assn. Claude E. Holgate, Mgr.

CONVENTIONS

Atlantic City, N. J., October 17 to 20, 1922—28th Annual Convention of the National Hardware Association of the United States. Automobile Accessories Branch exhibit and meeting at the Ambassador. T. James Fernley, Secy., 505 Arch St., Philadelphia.

Chicago, Ill., October 18 to 20, 1922—Convention of National Association Farm Equipment Manufacturers.

Chicago, Ill., November 13 to 18, 1922—Annual convention of the Automotive Equipment Association, Coliseum.

Chicago, Ill., November 14 to 15, 1922—Semi-annual service convention of the factory service managers of the National Automobile Chamber of Commerce, Henry Cobleigh, Secretary of Service.

Chicago, Ill., November 20 to 22, 1922—Fifteenth annual convention of Southern Commercial Congress, under auspices of Chicago Association of Commerce, and the Illinois Manufacturers' Association, Col. Winfield Jones, Secy-Treas., Southern Bldg., Washington, D. C.

Corpus Christi, Texas, March, 1923—Annual convention of the Texas Automotive Dealers' Assn., W. A. Williamson, Mgr., 104 Gunter Hotel, San Antonio.

Des Moines, Iowa, November 9 to 10, 1922—Convention of Iowa Automotive Merchants' Association, Inc., A. J. Knapp, Secy., 3rd floor, Shops Bldg., Des Moines.

Detroit, Mich., October 26 and 27, 1922—Automotive production meeting of the Society of Automotive Engineers, General Motors Bldg. Production Dinner, Oct. 26.

Grand Rapids, Mich., November 21 to 23, 1922—Annual meet of the Michigan State Good Roads Assn.

Great Falls, Mont., May, 1923—Annual meeting of the Montana Automobile Distributors' Association, Hotel Rainbow. L. E. Jones, Secy.

Harrisburg, Pa., November 20 to 21, 1922—Annual convention of the Pennsylvania Automotive Association. L. H. Hagerling, Secy., Harrisburg.

Indianapolis, Ind., December 5, 1922—Annual convention of the Indiana Automotive Trade Association, D. C. Barnett, Secy., 729 Peoples' Bank Bldg., Indianapolis.

New York, N. Y., January 9 to 12, 1923—Annual meeting of the Society of Automotive Engineers, Engineering Society Bldg., 29 West 39th St.

Olympia, Wash., July, 1923—Annual convention of Washington Automotive Trade Association, Olympian Hotel.

Providence, R. I., April 5, 1923—Annual election of officers, Rhode Island Automobile Dealers' Assn. Ralph P. Lord, Secy., 617 Industrial Trust Bldg., Providence.

Quincy, Ill., March 3, 1923—Fourth annual convention of the Illinois Automotive Trade Assn., F. C. Zillman, Mgr., 212 Lehmann Bldg., Peoria, Ill.

Richmond, Va., March 8, 1923—Annual convention of Virginia Automobile Dealers' Assn., Murphy Hotel.

Santa Barbara, Calif., October 16 and 17, 1922—Convention of California Automobile Trade Assn., Robt. W. Martland, Secy., Oakland.

Salt Lake City, Utah, February, 1923—Annual meeting of Intermountain Automotive Trades Association, Carl L. Snow, Mgr., Salt Lake City.

Toledo, Ohio, December 6 to 8, 1922—Sixth annual convention Ohio Automotive Trade Association, at LaSalle-Koch Co., assembly rooms. E. J. Shover, Mgr., 404 Central National Bank Bldg.

Topeka, Kansas, January 15, 1923—Convention of Automobile Trade Association of Kansas. Phil. E. Zimmerman, Topeka.

Washington, D. C., October 26 to 28, 1922—Second national conference for study of highway engineering and highway transport education, auspices Highway Education Board.

FOREIGN EVENTS

Brussels, Belgium, November 10 to December 19, 1922—Automobile Show, Palais de la Cinquantenaire.

Brussels, Belgium, January 13 to 24, 1923—16th annual Automobile and Cycle Exposition at Palais du Cinquantenaire. Passenger cars, trucks, tractors, accessories, etc.

Seville, Spain, May 1923—International Road Congress.

Rome, Italy, March 19 to 24, 1923—General meeting, International Chamber of Commerce.

Tariff Bill Reflects the Recommendations of N.A.C.C.

General Bargaining Clause, 25 Per Cent Automobile Duty and 90 Per Cent on "War" Vehicles in New Bill

Practically all of the suggestions made by the National Automobile Chamber of Commerce have been retained in the final draft of the tariff bill, which was signed by President Harding September 21, following 20 months of hearings and debates.

Five clauses directly affect the automobile industry. The automobile duty is fixed at 25 per cent of foreign value; there is a 90 per cent duty on re-imported "war" vehicles; crude aluminum is subject to a duty of 5 cents per pound; ball bearings are dutiable at the rate of 45 per cent plus 10 cents per pound, crude oil will remain on the free list.

There is a specific clause, applicable to all commodities in the bill, which will discourage discriminations abroad, by giving the President power to increase or decrease tariff rates by one-half, depending on whether the country in which the imports originate favor or discriminate against American commerce. Complete embargoes, being possible, will prove helpful in foreign countries where American goods are shut out in favor of competing nations.

The passage of the bill has met with much satisfaction throughout the trade. J. Walter Drake, chairman of the foreign trade committee of the N.A.C.C., said, "The newly agreed upon export features of the tariff bill, assuring equality of treatment in non-manufacturing as well as industrial countries, will stimulate American automobile trade abroad."

The Guaranty Trust Company of New York, in commenting on the bill, says, "The granting to the President of such broad authority over the business and trade of the nation has received little comment, in spite of the great opposition which usually has been manifested in practically every extension of executive power in this country. This may be due to a recognition of the rapidity with which economic conditions are changing today and the usual tardiness of the legislative branch in meeting these changes."

Interest Grows in Highway Transport Conference

Increasing interest in the forthcoming conference on highway transport and highway engineering education, to be held by the Highway Education Board in Washington, October 26 to 28, is reflected in replies to invitations from educators and men high in the councils of the automotive industry. It is estimated that at least 300 regularly invited delegates will be present, with approximately half as many more in attendance who are concerned in the problems to be studied. Headquarters of the conference will be the New Willard Hotel.

The program has reached the stage of final approval, the committee appointments now being made. Educators are inclined to stress the work to be done in committee conference, while outside this circle interest is attached to the inspirational addresses expected from persons who are now receiving invitations.

Among the automotive officials who plan to attend are Alvan Macauley, president Packard Motor Car Company; Robert H. Salmons, vice-president Selden Truck Corporation; E. M. Sternberg, Sterling Motor Truck Company; Roy D. Chapin, president Hudson Motor Car Company; A. J. Brosseau, president Mack Motor Car Company; H. S. Firestone, president Firestone Tire and Rubber Company; H. W. Alden, vice-president Timken-Detroit Axle Company; Clark A. Ward, president Ward Motor Vehicle Company.

M.A.M.A. Traffic Division Behind Recent Ratings

Work of Herman Deuster and His Assistants Has Been of Great Value to Association Members

New freight classification ratings which will result in reduced transportation costs on passenger car bodies, both finished and unfinished, have been obtained for the automobile industry by the traffic department of the Motor and Accessory Manufacturers' Association. The new rate, which will effect a saving from 25 to 66 per cent, according to zones, will become effective about November 15 of the present year.

The rates are the result of 18 months' effort of the traffic department of the M. A. M. A., of which H. Deuster is chairman, and the co-operation of the National Automobile Chamber of Commerce and the Automobile Body Builders' Association. It required exhaustive data and research to convince the Classification Committee of the railroads that the proposed classifications were just, and that passenger car bodies should enjoy the same ratings as apply on horse drawn vehicles.

No little credit is due the traffic department of the M. A. M. A. for its labors, and this department also has prepared classifications for over 40 different commodities and prepared specific briefs dealing with these. The new rating is one of the many services rendered the members and the traffic department is working on other problems the solving of which will be a distinct advantage to members.

Owing to the growth in membership and increased activities the M. A. M. A. has been obliged to seek new and larger quarters. On and after September 22 the offices will be located in the Fisk Building, 250 West 57th Street at Broadway, New York City.

Texas Building 1,382 Miles of Federal Aid Highways

Texas is leading all other states in the construction of federal aid highways. This state now has 1,382 miles of such highways under construction, and has in addition completed 1,116 miles.

September Productions Reach 205,950 Cars and Trucks

Surpasses Figures for September, 1921, by 48,553; October Prospects Good

September production of automobiles in the United States, although one-third better than September, 1921, has fallen slightly below the figure of August. Shipping figures announced at the N. A. C. C. members meeting, indicated a production of 205,950 passenger cars and trucks for the past month.

One of the chief reasons for the decline was the five-day shut-down of the Ford Motor Co., which, if based on a production of over 5000 daily, makes a considerable hole in the production figures. The usual seasonal decline was also one of the factors in the smaller production, as well as the coal and railroad strikes.

Taking all these factors into consideration, September figures are still exceptionally high and make the output of September, 1921, of 157,404 cars and trucks appear rather small.

Whether production for 1922 will reach 2,500,000 is still problematical. Figures issued by the N. A. C. C. place production for the first nine months of this year at 1,868,151. This means that the remaining three months must average 210,616 cars and trucks a month. However there is every indication that the yearly output will surpass that of 1920, 2,205,197, which now stands as the record for production in the passenger car and truck industry.

Trade reports from the field indicate that October business will be good, though, as usual, it will be considerably under the summer months. The closed car business is helping the fall market. Prospects for Christmas trade are reported to be good in the South, though in other sections this is not a big factor.

Monthly factory sales figures for the three-quarters of 1921 and 1922 are:

	1921	1922
January	51,919	90,481
February	65,218	120,293
March	109,758	171,390
1st quarter	226,895	382,164
April	156,892	219,294
May	163,667	255,167
June	177,757	289,120
2nd quarter	498,316	763,581
July	176,067	244,355
August	178,831	272,094
September*	157,404	*205,957
	512,302	722,406

*N. A. C. C. September, 1922, estimated from traffic reports.

General Motors Acceptance Head Resigns

Paul Fitzpatrick, who organized the General Motors Acceptance Corp., in 1918, and who is said to be personally responsible for the growth of that corporation, has tendered his resignation from that organization. He is sailing for Europe on a vacation trip. His future plans will be divulged upon his return some time in November.

New Jersey Trade Will Fight Highway Bond Bill

Steps to enlist the active support of the owners of the more than 300,000 motor cars and trucks registered in New Jersey in favor of the Highway Bond Bill, which will come up for referendum vote at the November elections, were consummated recently when committees were appointed representing the New Jersey Automotive Trade Association, the State body of dealers, and the Associated Automobile Clubs, which is the State organization of motorists.

Local committees have been appointed to call upon everyone that owns a motor vehicle, and point out that unless the bond bill passes there will be a cessation of construction of the State highway system for the next five years.

"Indications point to the passage of the bond bill by an overwhelming majority," said President John L. Brock, of the State Dealers' Association. "Reports have come in from all parts of the state, and the public is thoroughly aroused to the necessity of passing this issue, if we are to have any roads to travel over. The fact that if the bond bill fails to pass there is grave likelihood of an increase in the mill tax, with further increases in license fees, gasoline tax and other burdens, is beginning to dawn upon the public at large. Not only are users of the roads affected, but the owner of a small piece of property, the small business man and every other tax payer in the state are vitally concerned as to whether we shall build our roads from present income through the bond bill, or whether we shall build them through additional taxation.

"Our taxes are high enough now. There is absolutely no need for an increase in taxation, and as soon as the voters learn that the passage of the bond bill for highways does not mean the increase of one penny in their taxes, we receive their unqualified support of the bond bill."

Tire and Rim Association Has Been Re-organized

The old Tire and Rim Association has been taken over by a new body known as the Tire and Rim Association of America, Inc., and will continue to carry on the activities of the old organization in the rim, tire, wheel and related industries.

The new Association will have as its immediate goal, the enrolling of its membership, of every tire, rim, wheel and related parts manufacturer in United States and Canada. In addition the home office of the corporation, in Hartford, the new association will continue to use the offices occupied by the Tire Association in the Leader-News Bldg., Cleveland, O.

The officers have been elected as follows: S. P. Thacher, president; John Younger, vice-president; C. A. Thompson, secretary; and H. W. Kranz, treasurer. Directors are: Tires, J. E. Hale, Firestone Tire & Rubber Co.; J. D. Anderson, Fisk Rubber Co.; W. H. Allen, B. F. Goodrich Co.; B. Darrow, Goodyear Tire & Rubber Co.; E. O. Fritch, Hood Rubber Co.; C. F. Offensend, Miller Rubber Co.; and S. P. Thacher, United States Rubber Co. Rims: J. H. Wagonhorst, Hayes Wheel Co.; W. B. Minch, Jaxon Steel Products Co.; Ford Lawrence, Kelsey Wheel Co.; John Younger, Standard Parts Co. Wheels: P. Pleiss, Budd Wheel Co.; C. C. Carlton, Motor Wheel Corp.; O. J. Rohde, Wire Wheel Corp. of America. Related Parts: W. J. Kirkpatrick, A Schrader's Son, Inc. Mr. Thompson also remains as general manager and C. E. Bonnett as chief rim inspector.

Fay Bus Company Destroyed by Disastrous Fire

A spectacular fire which broke out in the garage of the Fay Motor Bus Co., Rockford, Ill., Sept. 25, destroyed the building and contents with a total loss of $60,000 as estimated by the fire department, but placed by Ronald Fay, manager at a much higher figure. "Our loss will run between $150,000 and $180,000," he said, in the absence of his father, Thomas Fay. No insurance was carried by the bus company. Policies of $52,000 carried last Spring when the company was running with a full force, were cancelled when adverse decisions from the Illinois Commerce Commission, lessened the activities of the company.

I. H. C. to Add Three Service Stations in Chicago

Three new service stations are to be added to the representation of the International Harvester Co., in the city of Chicago, making a total of four stations, with one now in operation. The expansion has been made necessary by the increase in truck sales in that territory and the need for more convenient service facilities. It was the original intention to establish service facilities in one large station, but it was found that truck owners could be better served by placing three stations in widely separated localities. The four stations will afford 80,000 sq. ft. of floor space and will be modern in every detail.

A. Schrader's Son, Inc., Changes Marketing Plan

Hereafter all goods manufactured by A. Schrader's Son, Inc., are to be sold direct to tire manufacturers and jobbers or through the Schrader Company's consignee who will sell at the same price as the manufacturer. The old plan included the marketing of products under a license agreement and certain price restrictions.

L. R. Smith Resigns as Midwest Advertising Manager

It was announced that Lon R. Smith has tendered his resignation as director of sales and advertising of the Midwest Engine Co., Indianapolis, in order to take up other duties the nature of which has not been divulged. His plans will not be definitely announced until later. Meanwhile he will remain in charge of Midwest sales.

New York Farmers Have the Greatest Number of Trucks

The tremendous growth of motor truck sales and how they are fast replacing the horse on the farms of the country is shown in figures announced by Vance Day, sales manager of the General Motor Truck Co., Pontiac, Mich.

"Today," Mr. Day says, "there are 139,169 motor trucks on 131,551 farms in the United States. The farmers of New York lead the country in the number of trucks, with 9,259 to their credit, while Pennsylvania is second, with 9,072 to their credit, and Iowa is third with 8,910. Ohio ranks fourth with 7,319."

Other states and the number of trucks owned in that territory follow:

Maine 1,120, New Hampshire 717, Vermont 616, Massachusetts 3,535, Rhode Island 536, Connecticut 1,595, New Jersey 3,380, Indiana 3,671, Illinois 6,154, Michigan 4,886, Wisconsin 4,044, Minnesota 3,803, Missouri 5,059, North Dakota 774, South Dakota 4,353, Nebraska 6,548, Kansas 3,928, Delaware 304, Maryland 2,805, District of Columbia 29, Virginia 2,544, West Virginia 936, North Carolina 2,671, South Carolina 1,736, Georgia 3,145, Florida 1,617, Kentucky 1,538, Tennessee 1,430, Alabama 1,180, Mississippi 1,005, Arkansas 1,027, Louisiana 874, Oklahoma 2,155, Texas 5,399, Montana 1,225, Idaho 837, Wyoming 591, Colorado 3,016, New Mexico 593, Arizona 581, Utah 572, Nevada 174, Washington 3,371, Oregon 1,819, California 6,416.

Murray Rubber to Operate the Old Empire Company

The Murray Rubber Co. will succeed the Empire Tire & Rubber Co., Trenton, New Jersey, whose assets were recently purchased at a receiver's sale by Campbell, Heath & Co., New York. W. M. Pepper, a former president of the Empire Company, is treasurer of the purchasing company.

C. Edward Murray, Jr., will be elected president and general manager of the tire concern. Other officers will be W. M. Pepper, vice president and treasurer, Harvey R. Nason, secretary; Ray H. Paddock, director of tire sales; Robert M. Stuart, director of mechanical sales; W. W. Sanders, factory manager; Albert N. Alexander, comptroller; H. Earl Berrein, assistant treasurer, and Norman S. Conover, assistant secretary. The Empire products will be continued and several Murray products added.

L-M Axle Purchases the Jones Gear Company

The Jones Gear Co., which went into bankruptcy some time ago, has been purchased by the L-M Axle Co., Cleveland, manufacturer of L.M. double reduction axles for trucks for the sum of $500,000. The axle company obtains a plant that is fully equipped to make its products and will go into large production. George B. Durell, is president and treasurer.

Instructive Movies Shown at Service Association Meeting

Two films were the feature of the October meeting of the Automotive Service Association of New York, held on October 5, at the Automobile Club of America. "Shop Profits," supplied through the efforts of the Black & Decker Mfg. Co., was the main reel of the evening as it showed the transition of the one-man shop to a large service station and why, without proper system, time and labor saving tools and equipment, there are no profits. The other film was along similar lines except that it dealt with a class of dealer too numerous for the good of the car he represents. But the film showed he was changed into a successful business man by business methods. The title, "How to Sell and Service Automobiles and How Not to Do It," explains the picture. It was supplied by Paige-Detroit Motor Car Co. The attendance was good. Routine business was transacted.

Receiver Appointed for the Republic Motor Truck Co.

Alma, Mich., Sept. 28, 1922—The appointment of Security Trust Co. of Detroit, as Receiver for the Republic Motor Truck Co., Inc., made today by Judge Tuttle of the Federal Court at Detroit, was with the concurrence of the company and its largest creditors and is a step necessary in connection with the carrying out of a plan of reorganizattion.

The business of the company will be continued with Colonel Smith in charge of operations, and the details of the proposed plan of reorganization will be made public as soon as practicable.

The Republic Truck Sales Corp., is in no way affected by the receivership of the parent company, and will continue to handle its business as previously, in charge of the same management.

Good Roads Organization is Formed in South

The South Carolina Good Roads Association, the purpose of which is to further interest in the development of better roads and highways in the state, was recently formed and is now functioning under the leadership of J. Gilmore Smith, president-secretary; Harry L. Wilensky, 1st vice-president; August F. Wieters, 2nd vice-president; Martin T. Powers, treasurer. The association has the support of a number of the leading men of the state and will undoubtedly work much good in the way of highway development.

Muzzy-Lyon Has Moved to New Factory

The Muzzy-Lyon Co., well-known manufacturer of bronze back babbitt lined and die cast babbitt engine bearings, and babbitt alloys, has moved to its new plant and foundry, located on Schoemaker near St. Jean, Detroit. The company has found it necessary to run night shifts, in some departments to take care of the orders on hand.

Dodge Bros. Give Park Sites to State of Michigan

Eleven park sites, totaling 627 acres, all within a radius of 50 miles of Detroit, have been presented by Dodge Brothers, Inc., to the state of Michigan for the purpose of affording car owners relief from overcrowded roads. Ten of these parks have large lake or river frontage and the other is a rugged, almost mountainous parcel noted for its beautiful scenery.

To facilitate the growth of the city of Lansing, Mich., the Olds Motor Works recently gave the municipality nine acres. The site, valued at $50,000, is to be used for a power plant for the general use of the public.

Autocar Makes Million-Dollar Stock Issue

A new million-dollar issue of 8 per cent cumulative preferred stock is being brought out by the Autocar Company, of Ardmore, Pa. The stock is offered at $102 per share. The company states that the issue is made to increase the working capital and thereby reduce current liabilities and interest charges.

The stock prospectus gives the following financial statements: "Net quick assets as of June 30, 1922, amounted to $2,995,597, over all current liabilities. Net factory sales have grown steadily from $1,017,052 in 1909 to $9,373,480 in 1921, and for the 8 months of 1922 have been in excess of $6,500,000."

Action Deferred in Duty-American Steam Transaction

Elgin, Ill., stockholders of the Duty Motor Truck Co. were advised that the deal with the American Steam Truck Co., of Chicago, to take over the plant, was off, at least temporarily. The stockholders accuse the Association of Commerce of interference and declination to make an assignment of its interests in the land occupied by the plant of the Duty company. It will be necessary to borrow money to pay the Association of Commerce $7800 for its interest in the land, and efforts to obtain this sum were without avail. The stockholders are not disposed to pay this sum from assessments, and, as a result, there is little likelihood of a transfer being made.

Signal Truck Installs New Factory Branch at Indianapolis

M. B. Hoagland, president of the Signal Truck Corp., Detroit, announces the opening of a direct factory branch at 431 North Capitol Avenue, Indianapolis, Ind. The management of this branch has been placed in the hands of J. T. Crossland, who has served as district manager for a long period. Complete sales and service equipment has been installed and Mr. Hoagland feels that the already well-established Signal business in that territory will be greatly benefited by this move.

George Fritz General Manager of A. of A. E. M.

George Fritz, former general field secretary of the Automotive Equipment Association and general manager of the Research Club, has been made general manager of the Association of Automotive Equipment Manufacturers. Mr. Fritz has been identified with the automotive industry since May 1st, 1904, and for many years has been active in organization work.

The Association of Automotive Equipment Manufacturers was organized in 1916 by a small group of Chicago manufacturers of automobile equipment and remained a local organization until the end of 1921. In January, 1922, the activities of the association were extended and manufacturers from other sections of the country admitted until the total enrollment now comprises 78 members.

Executive offices are located in the consumers Building, State & Quincy Sts., Chicago.

Gasoline Waste in the United States is Enormous

Enough gasoline is being wasted annually in the United States, through preventable evaporation in storage tanks, to run a Ford car 1,440,000,000 miles, the equivalent of more than seven round trips between the earth and the sun, according to an extensive survey on conservation made by engineers of Johns-Manville, Inc., and the U. S. Bureau of Mines.

It was further computed that the 775 uninsulated storage tanks in the United States holding gasoline and crude oil, each with a capacity of 55,000 barrels, are losing by evaporation more than 6,000,000 gallons of gasoline per month, and that these losses are largely controllable by the application of proper insulation.

Cleveland Tractor to Make 1¼ Ton Truck

A 1¼-ton truck is soon to be produced by the Cleveland Tractor Co., of Cleveland, O. Some time ago it was announced that the Zeder passenger car was to be manufactured in this plant, but the plans have been rearranged and the Zeder will be made elsewhere. Fred W. Ramsey, former president of the Cleveland Metal Products Co., has become chairman of the board of directors of the tractor company.

Atlantic Coast Dealers' Association to be Formed

Announcement was made at the recent used car conference held in Chicago that an Atlantic Coast Association of motor car dealers is to be formed this winter, initative in this task having been taken by the Washington Automobile Dealers' Association, of which C. H. Warrington is president. Mr. Warrington told the dealers and association managers at the conference that expressions of approval have been received from many influential dealers up and down the coast territory.

Personal Items

F. H. Akers resigned as sales manager of the Republic Truck Sales Corp. His future plans will be announced later.

Claire L. Barnes, widely known in the automotive industry, has been appointed director of merchandising for the William H. Rankin Advertising Agency. His experience covers service with such well known firms as Detroit Steel Products Co., Billings & Spencer Co., Claire L. Barnes & Co., Sales Corp., Willys-Overland Co., and the Barnes Foundry & Mfg. Co., which he organized.

John L. Brown, who has been associated with the Traffic Motor Truck Corp., for the past two and one-half years in the Eastern wholesale territory, has been appointed retail sales manager of the Traffic Truck Sales Co., of Philadelphia, the Philadelphia branch of the factory.

M. L. Casman has been made equipment engineer in charge of the Equipment Bureau of the Pennsylvania State Highway Department. His headquarters will be at Harrisburg, Pa.

Louis S. Clarke, vice-president of the Autocar Company of Ardmore, Pa., recently arrived with Mrs. Clarke on the S. S. Pan American, after a business and pleasure trip in the South American cities.

Fred W. Earle, formerly of the United States Tire Co., has been made district representative for the Brunswick Balke Collender Co., and will be located in Sioux City, Iowa.

Waldo Emerson, who has been advertising manager of the Tide Water Oil Co., of New York, has been made sales manager of the Central Department, with headquarters at Chicago, of the Tide Water Corp.

Clyde E. Erskine, for many years connected with the Chicago branch of the International Motor Co., of New York, has been appointed manager of the St. Louis branch of the factory, located at 2800 Pine St. He succeeds J. C. Smith, who has joined the sales promotion department of the factory with headquarters in Chicago.

Frank H. Field, former representative of the Seiberling Rubber Co., in Columbus, O., is now in Cleveland in the same capacity. M. D. Berry takes his place in Columbus.

William A. Golden has been added to the staff of the National Vigilance Committee of the Associated Advertising Clubs of the World as a special case man who will devote his energies to uncovering fraudulent and deceptive advertising practices in the motor vehicle, tire, battery and accessory field. This work is part of a plan to give greater protection to the automotive industry.

L. Patton Hamilton, formerly with the CHILTON COMPANY, has been appointed assistant sales and advertising manager of the Hudco-Ford Company of America, Philadelphia, Pa.

Charles P. Hughes, secretary of committee of the Automotive Equipment Association, has tendered his resignation, which was accepted at the meeting of the Board of Directors.

Frank H. Longyear has been made district manager in charge of the new Detroit office of the Bridgeport Brass Co., Bridgeport, Conn. The office is located in the General Motors Bldg.

R. H. Scott, vice president and general manager of the Reo Motor Car Co., has been elected president of the Atlas Drop Forge Co., Lansing, Mich. Mr. Scott succeeds S. H. Carpenter, whose death occurred a few weeks ago.

George E. Sherman has resigned as manager of the truck department of the Chicago branch of the Ford Motor Co., to manage the Wright-Kenderdine Co., of that city. Mr. Sherman is credited with organizing the first truck department in any of the Ford branches.

Lee H. Smith, formerly in charge of appointing of service stations and the sale of equipment to the regular trade in the Cleveland District, for the Briggs & Stratton Co., has been made assistant to H. V. Rohm, sales manager of the Briggs & Stratton Co. Mr. Smith's headquarters will be at Milwaukee.

E. G. Streett, formerly with the Gibson Co., of Indianapolis, will represent the Klaxon Company in the South. His headquarters will be Atlanta, Ga.

Removals and Trade Changes

The Union Chain & Mfg. Co. is now located in its new factory at Sandusky, O., which has a floor space of 70,000 sq. ft. The plant is on the mainline of the New York Central Railroad.

The Olds Motor Works has opened a new Oldsmobile show room in the General Motors building in Detroit. The branch will be under the supervision of Ross C. Lowrie, who has been with the company for many years.

The American Gear Manufacturers' Association has moved its offices from Philadelphia, to 2443 Prospect Ave., S. E., Cleveland, Ohio. T. W. Owen is acting secretary.

The Mueller Electric Co. is now in its recently completed new building at 1583 East 31st St., Cleveland, where it will continue in a larger way the manufacture of electric specialties.

The Diamond Chain & Mfg. Co. announces the opening of an office at 340 Leader-News Bldg., Cleveland, O. This office will be in charge of H. I. Markey, who has been mechanical engineer in the engineering and sales departments of the company for five years.

The Automatic Electrical Devices Co., Cincinnati, O., manufacturer of the Homcharger, has been compelled to add a third plant to take care of the large demand for this product, due to a great extent to its popularity in the radio field.

Barnes & Co., automotive manufacturers' agent of Atlanta, Ga., has been forced to move to larger quarters at 16 Nassau St., that city. The firm states that it is desirous of taking on a few more lines.

George DeFrieze and **Harry J. Kimpel,** formerly in charge of the automotive belting department of the Cleveland Oak Belting Co., have taken over the above named department and are doing business as the Monarch Belting Co., 1270 Ontario St., Cleveland. The Cleveland Oak Belting Co. has discontinued the manufacture of these products.

The Cutting Larson Co., Inc., eastern distributor for the Oldsmobile, announces the opening of its new eight-story building at 311 West 66th St., New York City. The new structure affords 110,000 sq. ft. of floor space and will house the executive offices, sales room, parts, service and delivery departments, paint and trim shop, blacksmith and machine shop.

Literature

The Universal Battery Co., of Chicago, has issued its Universal bulletin 80-B. It contains complete replacement data for motor vehicles, new radio battery developments, new farm light battery developments and an explanation of "Charge for Service" plan.

The Goodrich Dealer, published by the B. F. Goodrich Rubber Co., outlines some of the things essential to permanent success in the retail tire field. The booklet also contains a number of danger points to be avoided in tire merchandising. A helpful little work that dealers could read to advantage.

A. W. Cadman Manufacturing Co., Pittsburgh, Pa., has issued two technical bulletins, "Cadman Metals," and "Bearings and Bearing Metals." The bulletins contain much information which is now published for the first time and nothing is included which is not based on thoroughly proven tests. A very successful attempt is made to give the reader a clear understanding of what actually takes place in a bearing.

Clayton W. Butterfield

Former sales manager of the Herschell-Spillman Motor Co., who has become manager of the sales and service departments of the Owen-Dyneto Electric Co., Syracuse, N. Y.

P. A. Calkins

Who has received a promotion in the Replacement Spring Division of the Perfection Spring Co. He will assist P. S. DeVilbiss in the national distribution of the company's products.

Oscar F. Ostby

Who has assumed the duties of general sales manager of the Prest-O-Lite Co., Inc., of New York. He succeeds C. C. Leininger, who has resigned.

R. S. Mitten

Who has been appointed branch manager for the Chicago territory of the Black & Decker Mfg. Co. He succeeds W. C. Allen, who has been made sales supervisor for the company.

Replacement Table—Corrected Monthly

Including Piston Ring Sizes, Carburetor Sizes, Hose Sizes, Fan Belt Sizes, Brake Lining Sizes and Truck Frame Dimensions

Note: Under Carburetor Inlet Diameter Will be Found Either the Size of Main Air Intake or the Gasoline Fuel Line

Fan Belt Type: V—V-Shape, F—Flat, R—Round

Name, Model and Tonnage	ENGINE												BRAKE LINING								FRAME	
	Piston Rings		Carburetor			Upper Hose		Lower Hose		Fan Belt			Service				Emergency				Length	Width
	No. per Cyl.	Width	Outlet Diameter	Inlet Diameter	Vertical or Horizontal	Length	Width	Length	Width	Length	Width	Type	Length	Width	Thickness	No. of Pieces	Length	Width	Thickness	No. of Pieces	Back of Driver's Seat	Over All
Acason R–1	4	1/4	1	....	....	....	....	....	....	....	....	....	11 1/2	3	1/4	2	11 1/2	3	1/4	2	112	34
Acason RB–1 1/2	4	1/4	1	....	....	....	....	....	....	....	....	....	11 1/2	3 1/2	1/4	2	11 1/2	3 1/2	1/4	2	112	34
Acason H–2 1/2	3	1/4	1 1/4	....	....	....	....	....	....	....	....	....	13 1/2	3 1/2	1/4	2	13 1/2	3 1/2	1/4	2	130	35
Acason –L3 1/2	3	1/4	1 1/4	....	....	....	....	....	....	....	....	....	16	3 3/4	1/4	2	16	3 3/4	1/4	2	163 3/4	35
Acason M–5	3	1/4	1 1/2	....	....	....	....	....	....	....	....	....	18	4 1/2	1/4	2	18	4 1/2	1/4	2	167 1/2	35
Ace, Series A–1 1/2	3	1/8	1 1/4	1 1/4	H	10 3/4	2 1/4	6 1/2	2	37 1/2	1	F	12	3 1/4	1/4	4	12	3 1/4	1/4	4	122 1/2	32
Ace, Series A–2 1/2	4	1/4	1 1/4	1 1/4	V	10 3/4	2 1/4	5 1/2	1 1/4	33	1 1/4	F	13	3 1/4	1/4	4	13	3 1/4	1/4	4	144 1/2	32
Acme 20–1	3	1/8	1	1	H	11	2	11	2	38 3/4	3/4	V	10 1/2	2 1/2	1/4	4	10 1/2	2 1/2	1/4	4	110 3/8	34
Acme 30–1 1/2	3	1/8	1	1	V	11	2	11	2	38 3/4	3/4	V	12	3 1/4	1/4	4	12	3 1/4	1/4	4	110 3/8	34
Acme 40–2	4	1/8	1	1	V	8	1 1/2	11 1/2	1 1/2	40	1 1/4	F	12	3 1/4	1/4	4	12	3 1/4	1/4	4	123 3/8	34
Acme 60–3	4	1/4	1 1/4	1 1/4	V	7	1 1/2	11	1 1/4	39 1/4	1 1/2	F	13	3 1/2	1/4	4	13	3 1/2	1/4	4	132 3/8	34
Acme 60L–3	4	1/4	1 1/4	1 1/4	V	11 1/2	1 1/2	11 1/2	1 1/2	41 1/4	1 1/2	F	13	3 1/2	1/4	4	13	3 1/2	1/4	4	140 11/16	34
Acme 90–4 1/2	4	1/4	1 1/4	1 1/4	V	10	1 1/2	13	1 1/2	41 1/4	1 1/2	F	15 1/2	3 3/4	1/4	4	15 1/2	3 3/4	1/4	4	150 1/4	36
Acme 125–6 1/4	3	1/4	1 1/2	1 1/2	V	11	2	14	2	40 1/2	2	F	18	4	4	4	18	4	1/4	4	159 3/4	37
American 25–2 1/2	4	1/4	1/8	1 1/4	V	19	1 3/4	17	1 1/2	38	2	F	19	2 1/4	1/4	4	19	2 1/4	1/4	4	142	33
American 40–4	4	1/4	1/8	1 1/4	V	19	1 3/4	9 1/2	1 3/4	38	2	F	57	2 1/2	1/8	2	41 1/2	2 1/2	1/8	2	142	37
American 50–5	4	1 1/2	1/8	1 1/4	V	19	1 3/4	9 1/2	1 3/4	38	2	F	....	....	....	....	....	....	....	....	158	37
Apex C–1	3	1/8	1	1	V	7 1/4	2	12	2	36 1/2	7/8	....	42	2	....	2	41 1/2	2	....	2	102	35 1/2
Apex D–1 1/2	3	1/8	1	1	V	7 3/4	2	12	2	36 1/2	7/8	....	42	2	....	2	41 1/2	2	....	2	102	35 1/2
Apex E–2 1/2	4	1/4	1	1 1/4	V	7 1/2	1 1/4	8	2	32	1	....	54	2 1/4	....	2	53 1/4	2	....	2	128	31 1/2
Apex G	3	1/8	1	1	V	12	2	15 1/2	2	34 1/2	7/8	....	24	2	....	2	41 1/2	2	....	2	102	35 1/2
Armleder 21–1 1/2	4	1/4	1	1/8	V	12	1 3/4	16 1/2	1 1/4	31 1/2	2	F	11 1/2	3 1/4	1/4	4	11 1/2	3 1/4	1/4	4	Opt	32
Armleder 40B–1 1/2	4	1/4	1 1/4	1/8	V	9 1/2	2	11 1/2	1 1/4	33 1/4	2	F	13 1/4	3 1/2	1/4	4	11 1/2	3 1/2	1/4	4	Opt	32
Armleder 40C–1 1/2	3	1/8	1 1/4	1/8	V	10	1 1/2	11 1/2	1 1/4	35	1 1/4	F	13 1/4	3 1/2	1/4	4	11 1/2	3 1/2	1/4	4	Opt	32
Armleder KWB–3 1/2	4	1/4	1 1/4	1/8	V	12	2	16 1/2	1 1/4	35 3/4	2	F	42	3	1/8	1	16	3 3/4	1/4	8	Opt	36
Armleder KWC–3 1/2	3	1/8	1 1/4	1/8	V	10	1 1/2	16 1/2	1 1/4	35 3/4	2	F	42	3	1/8	1	16	3 3/4	1/4	8	Opt	36
Armleder HWB–2 1/2	4	1/4	1 1/4	1/8	V	9 1/2	2	11 1/2	1 1/4	33 1/4	2	F	13 1/4	3 1/2	1/4	4	13 1/4	3 1/2	1/4	4	Opt	32
Armleder HWC–2 1/2	3	1/8	1 1/4	1/8	V	10	1 1/2	11 1/2	1 1/4	35	1 1/4	F	13 1/4	3 1/2	1/4	4	13 1/4	3 1/2	1/4	4	Opt	32
Atco B–1 1/2	4	1/4	1	1	V	11	2	11	1 1/4	31 1/2	2	F	25 1/2	2 1/2	1/8	4	18	2 1/2	1/8	4	109 3/4	32
Atco B1–1 1/2	4	1/4	1	1	V	11	2	11	1 1/4	31 1/2	2	F	46	2 1/2	1/8	2	46	2 1/4	1/8	2	109 3/4	32
Atco A–2 1/2	4	1/4	1 1/4	1 1/4	V	12	2	11	1 1/4	33 1/4	1 1/4	F	25 1/2	2 1/2	1/8	4	18	2 1/2	1/8	4	124 1/4	33
Atlas 22–1	3	1/8	1	1/4	V	10	1 3/8	11	1 1/2	33 1/2	1 1/2	F	40	2	1/8	2	22 1/2	2 1/4	1/8	1	84 3/4	33 1/4
Atterbury 20R–1 1/2	4	1/8	1	3/8	....	8	1 1/2	14	1 1/2	38 11/16	1 1/4	F	11 1/8	3 1/4	1/4	4	11 1/8	3 1/4	1/4	4	122 1/8	34
Atterbury 22C–2 1/2	4	....	1 1/4	3/8	....	10 1/2	1 1/2	16	1 1/2	40 1/2	1 1/2	F	13 1/8	3 1/2	1/4	4	13 1/8	3 1/2	1/4	4	129 1/4	34
Atterbury 22D–3 1/2	4	....	1 1/4	3/8	....	10 1/2	1 1/2	16	1 1/2	40 1/2	1 1/2	F	15 5/8	3 3/4	1/4	4	15 5/8	3 3/4	1/4	4	142 3/4	37 1/2
Atterbury 8E–5	3	1/4	1 1/2	3/8	....	14	2	20 1/2	2	40	2	F	17 3/4	4	1/4	4	17 3/4	4	1/4	4	157 1/8	37 1/2
Autocar XX1–F–2	4	1/8	1 1/8	....	....	3	1 1/8	4	1 1/8	....	....	....	16 1/4	2 1/2	1/8	4	13	2 1/2	1/8	4	91	34
Autocar XXI–G–2	4	1/8	1 1/8	....	....	3	1 1/8	4	1 1/8	....	....	....	....	2 1/2	1/8	4	13	2 1/2	1/8	4	114	34
Autocar XXVI–Y4	3	1/4	1 1/8	....	....	3 1/2	1 1/2	3	1 1/2	49 1/4	2	F	25	2 3/4	1/4	4	25 1/2	2 3/4	1/4	4	140	34 1/16
Autocar XXVI–B4	3	1/4	1 1/8	....	....	3 1/2	1 1/2	3	1 1/2	49 1/4	2	F	25	2 3/4	1/4	4	25 1/2	2 3/4	1/4	4	176	34 1/4
Autocar XXVII–H4	3	1/4	1 1/8	....	....	3 1/2	1 1/2	3	1 1/2	47 1/4	2	F	22 5/8	2	1/4	4	22 5/8	2	1/4	4	131 1/2	34 1/8
Autocar XXVII–K4	3	1/4	1 1/8	....	....	3 1/2	1 1/2	3	1 1/2	47 1/4	2	F	22 5/8	2	1/4	4	22 5/8	2	1/4	4	155 1/2	34 1/8
Available H–1 1/2	4	1/8	2 1/4	1 1/8	....	11	1 5/8	14	1 5/8	40	2	....	48	2 1/2	1/4	2	36	2 1/2	1/4	2	120	32
Available H–2 1/2	3	1/8	2 1/4	1 1/8	....	11	1 5/8	14	1 5/8	40	2	....	13 1/2	3 1/2	1/4	4	13 1/2	3 1/2	1/4	4	144	32
Available H3	3	1/8	2 1/2	1 1/8	....	11	1 5/8	14	1 5/8	42	2	....	16	3 3/4	1/4	4	16	3 3/4	1/4	4	168	36
Available H5	3	1/4	2 1/2	1 1/8	....	12	2	16	2	40	2	....	18	4	1/4	4	18	4	1/4	4	168	38
Available H2	4	1/8	2 1/4	1 1/8	V	12	1 5/8	14	1 5/8	40	2	F	48	2 1/2	1/4	2	36	2 1/2	1/4	2	120	32
Available H2 1/2	4	1/8	2 1/4	1 1/8	V	12	1 5/8	14	1 5/8	40	2	F	13 1/2	3 1/2	1/4	4	13 1/2	3 1/2	1/4	4	144	32
Available H3 1/2	4	1/8	2 1/2	1 1/8	V	12	1 5/8	14	1 5/8	42	2	F	16	3 3/4	1/4	4	16	3 3/4	1/4	4	168	36
Available H5	4	1/4	2 1/2	1 1/8	V	12	2	16	2	40	2	F	18	4	1/4	4	18	4	1/4	4	168	38
Avery 1	3	1/8	....	1	....	10	2	6 1/2	2	31 3/4	1 1/2	F	19 1/2	2	1/4	4	18 1/2	2	1/8	4	85	34
Bell M–1	4	1/8	1	1/8	V	10	2	10	1 1/2	32	2	F	36	2 1/2	1/8	1	42	3	1/4	1	110	34
Bell E–1 1/2	4	1/8	1	1/8	V	10	2	10	1 1/2	32	2	F	39	2 1/2	1/8	1	48	3	1/4	1	114	34
Bell O–2 1/2	4	1/8	1 1/4	1/8	V	10	2	10	1 1/2	32	2	F	48	2 1/2	1/8	1	54	3	1/4	1	126	34
Bessemer G–1	3	1/8	1	1/8	V	11 1/2	2 1/4	10	2 1/4	42	5/8	V	47 1/2	2 1/2	1/8	2	45 1/2	2 1/4	1/8	2	98 1/4	34
Bessemer H–2–1 1/2	3	1/8	1	1/8	V	11 1/2	2 1/4	10	2 1/4	43	5/8	V	56 1/2	2 1/2	1/8	2	55	2 1/4	1/8	2	116	34
Bessemer J2–2 1/2	3	1/8	1 1/4	1/8	V	12	1 1/2	5	1 7/8	36 1/4	1 1/4	F	56 1/2	2 1/2	1/8	2	55	2 1/2	1/8	2	142 3/8	34
Bessemer K2–4	3	1/8	1 1/4	1/8	V	11 1/2	2 1/4	10	2 1/4	39 3/8	1 1/2	F	58 1/2	3 1/2	1/8	2	30 1/4	4 1/2	1/8	1	157 1/2	38
Bethlehem KN–1	3	1/4	....	1	H	8 3/4	2 1/8	8	2 1/8	35 1/2	1 1/4	F	15 1/2	2 1/4	1/8	1	15	2 1/4	1/8	2	90	32 1/8
Bethlehem GN–2	3	1/4	....	1 1/4	H	8 1/2	2 5/8	9 1/2	2 5/8	40 7/8	1 1/2	F	16 7/8	2 1/2	1/8	1	12 1/4	2 1/2	1/8	1	120	34 1/2
Bethlehem HN–3	3	1/4	....	1 1/4	H	8 1/2	2 5/8	9 1/2	2 5/8	40 7/8	1 1/2	F	20	2 1/2	1/8	1	15 1/2	2 1/2	1/8	1	138	34 1/2
Brinton C–1 1/2	3	1/8	1/8	3/8	....	11	1 1/4	13	1 1/4	33	11/16	F	39	2 1/2	1/8	1	38	2 1/2	1/8	1	118	33
Brinton D–2 1/2	3	1/8	1/8	3/8	....	11	1 1/4	13	1 1/4	33	11/16	F	13	3 1/2	1/4	2	13	3 1/2	1/4	2	135 1/2	33
Brockway S2–1 1/4	3	1/8	1	....	V	10 1/2	2 1/4	5 1/2	2 1/4	39	1 1/4	F	20	2	1/8	4	20	2	1/8	4	118	32
Brockway K4–2 1/2	3	1/8	1 1/4	....	V	6 1/2	1 3/4	13	1 1/4	34	1 1/4	F	12	3 1/8	1/8	4	12	3 1/8	1/8	4	142	34
Brockway R–2–3 1/2	3	1/8	1 1/4	....	V	9 1/2	1 3/4	14	1 1/4	34	1 1/2	F	15 5/8	3 3/4	1/8	4	15 5/8	3 3/4	1/8	4	176	36
Brockway T–5	3	1/4	1 1/2	....	V	13	2	22	2	40 1/8	2	F	18	4	1/8	4	18	4	1/8	4	176	36
Buffalo Tractor-Truck	4	1/8	1 1/4	1/8	V	7	1 5/8	13	1 5/8	41 1/2	2	F	21	2 1/4	1/4	4	21	2 1/4	1/4	4	124	34
Case	3	1/4	1 1/8	1 1/8	V	7	1 1/2	6	1 1/2	47 1/8	2	....	25 1/2	2 1/2	1/8	4	24 1/4	2 1/4	1/8	4	106	31
Chicago C–1 1/2	4	....	1	1 1/2	....	....	....	....	....	40	2	....	12 1/8	3 1/4	1/4	4	12 1/8	3 1/4	1/4	4	123	32
Chicago C–2 1/2	4	....	1 1/4	1 1/4	....	....	....	....	....	40	2	....	13 3/4	3 1/2	1/4	4	13 3/4	3 1/2	1/4	4	135	32
Chicago C–3 1/2	4	....	1 1/4	1 1/4	....	....	....	....	....	46	2	....	16	3 3/4	1/4	4	16	3 3/4	1/4	4	180	36 1/4
Chicago D–5	4	....	1 1/4	1 1/4	....	....	....	....	....	46	2	....	18	4	1/4	4	18	4	1/4	4	180	36 1/4
Climber A–20	3	1/8	1	1 1/4	H	....	....	....	....	32	1	....	16	2 1/4	1/4	2	16	2 1/8	1/8	1	120	34
Clydesdale 120B–5–6	3	1/4	1 1/8	1/8	V	9	2	18 1/2	2	46 1/2	2	F	18	4	1/4	4	18	4	1/4	4	131	38
Clydesdale 90–3 1/2–4 1/2	3	1/8	1 1/8	1/8	V	9	1 1/2	14	1 1/2	42	1 1/2	F	16	3 3/4	1/4	4	16	3 3/4	1/4	4	143	38
Clydesdale 65EX 2 1/2–3	3	1/8	1 1/8	1/8	V	9	1 1/2	14	1 1/2	42	1 1/2	F	13 1/4	3 1/2	1/4	4	13 1/4	3 1/2	1/4	4	132	33 1/4
Clydesdale 65X–2 1/2–3	3	1/8	1 1/8	1/8	V	11	1 1/2	11	1 1/2	40	1 1/2	F	13 1/4	3 1/2	1/4	4	13 1/4	3 1/2	1/4	4	137	33 1/4

Replacement Table—Continued

Name, Model and Tonnage	ENGINE											BRAKE LINING								FRAME	
	Piston Rings		Carburetor			Upper Hose		Lower Hose		Fan Belt			Service				Emergency				Length	Width
	No. per Cyl.	Width	Outlet Diameter	Inlet Diameter	Vertical or Horizontal	Length	Width	Length	Width	Length	Width	Type	Length	Width	Thickness	No. of Pieces	Length	Width	Thickness	No. of Pieces	Back of Driver's Seat	Over All
Clydesdale 42–1½–2	3	1/8	1 3/16	1/2	V	15	2	12	2	41	3/4	V	12	3¼	¼	4	12	3¼	¼	4	117	34
Clydesdale 20–1–1½	3	1/8	1 1/16	1/2	V	15	2	12	2	41	3/4	V	11¼	3	¼	4	11¼	3	¼	4	95	34
Clydesdale 18–¾–1¼	3	1/8	1 1/16	1/2	V	15	2	12	2	41	3/4	V	11¼	2½	¼	4	11¼	2½	¼	4	95	34
Clydesdale 10–¾–1¼	3	1/8	1 1/16	1/2	V	9	2	9	2	41	3/4	V	11¼	2½	¼	4	11¼	2½	¼	4	109	34
Clydesdale 10A–1–¾–1¼	3	1/8	1 1/16	1/2	V	9	2	9	2	41	3/4	V	11¼	2½	¼	4	11¼	2½	¼	4	109	34
Collier 18–1	3	1/8	1	....	V	9¾	2	10½	1¼	40	1	F	24	3½	1/8	4	24	3½	1/8	4	106	35¼
Collier 19–1½	3	1/8	1	....	V	9¾	2	10½	1¼	40	1	F	24	3½	1/8	4	24	3½	1/8	4	120	32
Collier 21–2	3	1/8	1½	....	V	6	1½	10½	1¼	40	1	F	27½	3½	1/8	4	27½	3½	1/8	4	132	32
Collier 22–2½	3	1/8	1½	....	V	6	1½	10½	1¼	40	1	F	27½	3½	1/8	4	27½	3½	1/8	4	144	32
Commerce 9–1500	3	1/8	1	1/8	V	10	2	10	2	44	3/4	V	50	2	1/8	2	48½	2	1/8	2	92 5/8	34
Commerce T–1500	3	1/8	1	1/8	V	10	2	10	2	44	3/4	V	50	2	1/8	2	48½	2	1/8	2	92 5/8	34
Commerce 12–3000	3	1/8	1	1/8	V	10	2	10	2	44	3/4	V	45	2½	1/8	2	43	2¼	1/8	2	99 5/8	34
Commerce 16–4000	3	1/8	1	1/8	V	10	2	10	2	44	3/4	V	50¾	2½	1/8	2	48	2¼	1/8	2	108 5/8	34
Commerce 25B–5000	4	1/4	1¼	1/8	V	9½	1½	15½	1½	42	1½	F	13	3½	¼	4	13	3½	¼	4	132	34
Concord A–2	4	1/4	1¼	1/8	H	11	2 3/8	9½	1½	34	2	F	12	3¼	¼	4	12	3¼	¼	4	108¼	32¼
Concord AX–2	4	1/4	1¼	1/8	H	11	2 3/8	9½	1½	34	2	F	12	3¼	¼	4	12	3¼	¼	4	122¾	32¼
Concord B–3	4	1/4	1¼	1/8	H	11	2 3/8	9½	1½	34	2	F	13½	3½	¼	4	13½	3½	¼	4	122½	32¼
Concord BX–3	4	1/4	1¼	1/8	H	11	2 3/8	9½	1½	34	2	F	13½	3½	¼	4	13½	3½	¼	4	155 5/8	32¼
Corbitt E–1	3	1/8	1	1/8	....	8	2	14	2	38	5/8	V	19	2	1/8	2	19	2	1/8	2	105	34
Corbitt D–1½	3	1/8	1¼	1/8	....	8	2	14	2	38	5/8	V	45¼	2	¼	1	45¼	2	¼	1	120	34
Corbitt C–2	3	1/8	1¼	1/8	....	14	1¼	13	1¼	36	1¼	F	51½	2¼	¼	1	51½	2¼	¼	1	138	35
Corbitt B–2½	3	1/8	1¼	1/8	....	14	1¼	13	1¼	36	1¼	F	51½	2¼	¼	1	51½	2¼	¼	1	138	35
Corbitt AA–5	3	¼	1½	1/8	....	13	1¼	8	1¼	36	2	V	69¾	3	¼	1	69¼	3	¼	1	160	38
Corbitt A–3½	3	1/8	1¼	1/16	....	13	2	14	2	36	1¼	V	64	2½	¼	1	64	2½	¼	1	160	35
Cyclone A–3000	3	1/8	1	1	V	16	2	16	2	32½	1¼	F	21¼	2½	1/8	4	19¾	2¼	1/8	4	113	34
Dart S–1½	3	1/8	1¼	1 11/16	H	11	2	8	1¾	36	1	F	19	1¾	1/8	4	19	1¾	1/8	4	112	34
Dart M–2½	4	1/4	1¼	1 11/16	H	11	2	13	1¼	35	2	F	10	2½	¼	2	19	3½	¼	4	124	34
Dart W–3½	4	1/4	1½	2	H	11	2	12	1½	36	2	F	28	2¾	¼	4	28	2¾	¼	4	144	38
Day-Elder AS–1	3	1/8	1¼	1½	V	9	2	9½	2	40	5/8	V	19	2	¼	4	19	2	¼	4	108	35
Day-Elder B–1½	3	1/8	1½	1½	V	9	2	9½	2	40	5/8	V	19	2	¼	4	19	2	¼	4	120	35
Day-Elder D–2	3	1/8	1¼	1½	V	4	4	9	1 3/8	35	5/8	V	45	2	¼	2	45	2	¼	2	125	35
Day-Elder C–2½	3	¼	1¼	1½	V	10½	2	12	1 3/8	36¾	2	F	52	2¼	¼	2	52	2¼	¼	2	123	35
Day-Elder F–3½	3	1/8	1½	1¾	V	6¾	1¾	12	1¼	35¼	1½	F	56½	2½	¼	2	56½	2½	¼	2	148	35
Day-Elder E–5	4	¼	1½	1¾	V	12½	2	10	1 3/8	38½	1½	F	69	3	¼	2	69	3	¼	2	155	37
Dearborn BW–2	3	....	1	....	....	8¾	2	6	1¾	37	1	F	18	2½	1/8	2	18	1½	1/8	2	130	32
Dearborn F–1½	3	....	1	....	....	12	2	8	1¾	37	1	F	16½	2½	1/8	2	16½	1½	1/8	2	96½	34
Dearborn C–1	3	....	3/4	....	....	....	....	....	....	....	....	....	38	2	1/8	1	38	2	1/8	1	107	32
Defiance B–1½	3	1/8	1	1	V	10	2	8	2	40¾	1¼	F	45	2½	1/8	1	43 1/8	2¼	1/8	1	116	34
Defiance C–2	3	1/8	1	1	V	10	2	8	2	40¾	1¼	F	54 1/16	2½	1/8	1	52½	2¼	1/8	1	116	34
Defiance D	3	1/8	1	1	V	10	2	8½	1¼	40¾	1¼	F	45	2½	1/8	1	43 1/8	2¼	1/8	1	120	34
Defiance E	3	1/8	1	1	V	10	2	8½	1¼	40¾	1¼	F	54 1/16	2½	1/8	1	52½	2¼	1/8	1	120	34
Denby 31–¾	3	1/8	1	1	....	6	2 3/8	19	2 3/8	38 5/8	1¼	F	49	2½	1/8	2	47½	2¼	1/8	2	97 5/8	34
Denby 33–1½	3	1/8	1	1	....	9	2	12	2	41 1/16	3/4	V	8½	4	¼	2	46½	1½	¼	2	120	33¼
Denby 34	3	1/8	1	1	....	9	2	12	2	41 1/16	3/4	V	53 1/16	3	1/8	2	50 11/16	2	1/8	2	127	34
Denby 35–2½	3	1/8	1¼	1¼	....	8	2	14¼	1¼	34¼	1½	F	8½	4	¼	2	51	3	1/8	2	143¾	33¼
Denby 27–4	3	1/8	1¼	1¼	....	13	1¾	16¼	1¼	38½	1½	F	8½	4	¼	2	58	2½	1/8	2	140	34
Denby 210–5	3	1/8	1¼	1¼	....	13	1¾	16¼	1¼	38½	1½	F	8½	4	¼	2	89	2¼	1/8	2	140	34
Dependable Dispatch A-1¼	4	1/8	1	1/8	V	14	2¼	15	1¼	37½	2	F	53¼	2¼	1/8	1	38¼	2¼	1/8	1	108	33½
Dependable C–2	4	1/8	1	1/8	V	14	2¼	15	1¼	37½	2	F	53½	2½	1/8	1	38½	2½	1/8	1	121	33
Dependable D–2½	4	1/8	1¼	1/8	V	10	2¼	11½	1¼	37½	2	F	53½	2½	1/8	1	38½	2½	1/8	1	140	33
Dependable E–3	4	1/8	1¼	1/8	V	10	2¼	11½	1¼	37½	2	F	63	2½	1/8	1	49	2½	1/8	1	152	33
Dependable G–3½	4	1/8	1¼	1/8	V	13	2	13	1¼	37½	2	F	63	2½	1/8	1	49	2½	1/8	1	170	33
Diamond T–O–3–1¼	3	1/8	1	1¼	V	9	1¼	6	1¼	35	2	F	48	2½	1/8	2	33	2½	1/8	2	100	34
Diamond T–FS&T–1½	3	1/8	1	1¼	V	9	1¼	6	1¼	35	2	F	11½	3¼	¼	4	11½	3½	¼	4	Opt	34
Diamond T–U–2–2½	3	1/8	1¼	1¼	V	9	1¼	6	1¼	35	2	F	13¼	3½	¼	4	13¼	3½	¼	4	Opt	34
Diamond TK–3½	3	¼	1¼	1½	V	10	1½	10	1½	35	2	F	15⅝	3¾	¼	4	15⅝	3¾	¼	4	Opt	37
Diamond T–EL–5	3	¼	1¼	1½	V	10	1½	10	1½	35	2	F	18	4	¼	4	17 11/16	4	¼	4	Opt	37
Diamond T–S–5	3	¼	1½	1¾	V	9	2	21	2	40⅜	2	F	18	4	¼	4	17 11/16	4	¼	4	Opt	37
Diehl A	3	....	1	1	....	....	....	....	....	....	....	....	28	2½	1/8	2	27	2	1/8	2	90	....
Dodge Brothers–¾	3	1/8	1⅛	¼	V	9	1½	7¼	1 1/16	34½	1	R	19¼	2¼	1/8	4	14⅜	1¾	1/8	4	47⅜	38
D–Olt	3	1/8	1	1/16	H	18	2	18	2	36	1	F	54	3	1/8	2	42	3	1/8	2	240	34
Dorris K–4–2½	3	¼	1¼	1¼	V	2¼	1½	6¼	1¼	42 7/8	2	F	13½	3½	¼	4	13½	3½	¼	4	142¾	34
Dorris K7–3½	3	¼	1¼	1¼	V	2¼	1½	6¼	1¼	42⅞	2	F	15¾	3¾	¼	4	15¾	3¾	¼	4	178½	36
Douglas GW–1½	....	....	1¼	¼	....	....	....	....	....	....	....	....	45	2½	1/8	2	44	2¼	1/8	2	118	31
Douglas G–1½	3	....	1¼	¼	....	....	....	....	....	....	....	....	46	2½	1/8	2	44	2¼	1/8	2	118	31
Douglas H–2	3	....	1¼	¼	....	....	....	....	....	....	....	....	55	2½	1/8	2	52	2¼	1/8	2	118	31
Douglas HW–2	3	....	1¼	¼	....	....	....	....	....	....	....	....	54	2½	1/8	2	42	2¼	1/8	2	118	31
Douglas I–3	3	....	1¼	¼	....	....	....	....	....	....	....	....	58	2½	1/8	2	44	2¼	1/8	2	132	31
Drake T–60	3	1/8	1¼	1½	V	9	1½	8	1¼	32	1¼	F	42¼	2½	1/8	1	37	2½	1/8	1	106	34
Duplex E–3½	3	¼	1¼	1	....	....	....	....	....	....	....	....	9½	2½	¼	2	5½	2½	¼	2	126	39⅛
Duplex A	....	....	1¼	1½	....	....	....	....	....	....	....	....	....	2	....	4	....	2	....	4	121	34
Eagle 100–2	4	1/8	1¼	1	V	14	2	16	1¼	33⅜	2	....	49½	3	1/8	1	46	2	1/8	1	Opt	36
Eugol 752–1	3	¼	1¾	1/8	V	8	1¾	15½	1¼	32¾	1½	F	11	2½	¼	2	11	2½	¼	2	102	30
Fageol 1½–2	3	1/8	1 1/16	1½	V	15½	1¼	11½	1¼	31	5/8	V	19¼	1¾	¼	2	19¼	1¾	¼	2	120	30
Fageol 2½–3	3	¼	1 1/16	1 11/16	V	10	1¼	14¾	1¼	34⅜	1½	F	13¼	3½	¼	2	13¼	3¼	¼	2	141	34
Fageol 3½–4	3	¼	1 5/8	2	V	9	1½	17½	1½	40½	1½	F	15½	3¾	¼	2	15½	3¾	¼	2	159½	37¾
Fageol 5–6	3	¼	1 5/8	2	V	9	1½	17½	1½	40½	1½	F	18	4	1/8	2	18	4	1/8	2	161¼	37¾
Fargo O17, P18–2, P19–2, P20–2	3	1/8	....	1⅛	....	10	2	10	2	42	5/8	V	52	2	1/8	2	50½	2	1/8	2	132	33
Fargo R	3	1/8	....	1⅛	....	10	2	10	2	42	5/8	V	52	3	1/8	2	50½	2	1/8	2	132	33
Federal R–2	4	1/8	1	1 1/16	V	15	1½	7	1½	35⅜	1	F	10 11/16	2½	¼	4	10 11/16	2½	¼	4	110	34
Federal SD–1½	4	1/8	1	1 1/16	V	15	1½	7	1½	35⅝	1	F	10 11/16	3	¼	4	10 11/16	3	¼	4	112	34
Federal TE–2	3	1/8	1¼	1½	V	7	1¼	6	1½	32½	1	F	13 1/16	3½	¼	4	13 1/16	3½	¼	4	118	34
Federal UE–2½	3	1/8	1¼	1½	V	7	1¼	6	1½	32½	1	F	13 1/16	3½	¼	4	13 1/16	3½	¼	4	134	34
Federal WE–3½–4	3	1/8	1¼	1½	V	12½	1¼	9	1¾	39	1½	F	15⅝	3¾	¼	4	15⅝	3¾	¼	4	154	38
Federal X–2–5–6	4	¼	1 11/16	2	V	10	2	14 1/16	1 7/8	40⅞	1¾	F	17 11/16	4	¼	4	17 11/16	4	¼	4	154	38
Federal Light Duty	3	1/8	1¼	1½	V	7	1¼	6	1½	32½	1	F	13 1/16	3½	¼	4	13 1/16	3½	¼	4	86	34
Federal Heavy Duty	3	1/8	1¼	1½	V	12½	1¼	9	1¾	39	1½	F	15⅝	3¾	¼	4	15⅝	3¾	¼	4	82	38
Ford T–1	3	¼	1.06	1 1/16	H	4	2	.....	1¾	27	1⅛	F	23⅞	1⅛	1/8	1	12	1⅝	1/8	2	60	23
Front Drive C–1½	4	1/8	1	1½	....	....	....	....	....	....	....	....	13	3	¼	2	15	3	¼	2	124	36
F. W. D. B–3	3	¼	1 11/16	1/16	....	4	2	5	1½	40	1⅞	F	27	3½	¼	1	43	2¾	¼	2	136	36
Garford 15–1	4	1/8	1	....	V	....	....	....	....	34	1½	F	11	2½	¼	4	11	2½	¼	4	96	34
Garford 25B–1½	3	1/8	1¼	....	H	....	....	....	....	37 1/16	1	F	11¾	3¼	¼	4	11¾	3¼	¼	4	108	34
Garford 70H–2½	4	¼	1¼	....	V	....	....	....	....	34 1/16	2	F	13 1/16	3½	¼	4	13 1/16	3½	¼	4	121	34
Garford 77D–4	4	¼	1¼	....	V	....	....	....	....	39	2	F	15⅝	3¾	¼	4	15⅝	3¾	¼	4	141	36
Garford 68D–5	4	¼	1½	....	V	....	....	....	....	41 3/16	2	F	17¾	4	¼	4	17¾	4	¼	4	150	36
Garford 150–A–7½	4	¼	1½	....	V	....	....	....	....	41 1/16	2	F	10½	4	3/8	2	21⅝	4	¼	4	150	36
Gary F–1–1½	4	¼	1¼	3/8	....	....	....	....	....	....	....	....	11	3	¼	2	11	3	¼	4	97⅛	34
Gary I–2	4	¼	1¼	3/8	....	....	....	....	....	....	....	....	12	3¼	¼	4	12	3¼	¼	4	120	34
Gary J–2½	4	⅛	1¼	3/8	....	....	....	....	....	....	....	....	13½	3½	¼	4	13½	3½	¼	4	120	34

Replacement Table—Continued

Name, Model and Tonnage	ENGINE												BRAKE LINING								FRAME	
	Piston Rings		Carburetor			Upper Hose		Lower Hose		Fan Belt			Service				Emergency				Length	Width
	No. per Cyl.	Width	Outlet Diameter	Inlet Diameter	Vertical or Horizontal	Length	Width	Length	Width	Length	Width	Type	Length	Width	Thickness	No. of Pieces	Length	Width	Thickness	No. of Pieces	Back of Driver's Seat	Over All
Gary K–3½	4	¼	1¼	¾	....	....	....	....	....	....	....	....	15	3¾	¼	4	15	3¾	¼	4	148	36¾
Gary M–5	4	¼	1½	⅝	....	....	....	....	....	....	....	....	18¼	4	¼	4	18¼	4	¼	4	168	39
Gersix K–2½	4	¼	1¼	1¼	H	12	2	14	1¼	36	2	....	20	2½	¼	4	47	2¼	¼	4	131	34
Gersix M–1½	4	¼	1¼	1¼	H	12	2	14	1¼	36	2	....	46	2	¼	2	46	2	¼	2	114	32
Gersix L–3½	4	¼	1¼	1¼	H	13½	2	16	1¾	36	2	....	56	2½	¼	2	56	2½	¼	2	144	36½
Giant 15A–1½	3	1	....	....	....	11½	2	10	2	36½	¾	V	11¾	3¼	¼	8	11¾	3¼	¼	8	116½	32
Giant 16–2½	3	1	1¼	....	....	7½	1¼	11½	1¼	36½	¾	F	13	3½	¼	8	13	3½	¼	8	140½	33
Giant 17–3½	3	1	1½	....	....	9½	1¾	12	1¼	36	¾	V	15⅝	3¾	¼	8	15⅝	3¾	¼	8	183½	36
G.M.C. K–16	4	1	1¼	1⅝	V	8¾	1½	8	1½	35⅝	⅜	V	49⅝	2⅛	1	2	47	2⅜	1	2	89	34
G.M.C. K–20	4	¼	1¼	1⅝	V	10	1¾	9½	1¾	37⅞	⅜	V	49⅝	2⅞	1	2	47	2⅜	1	2	191	33
G.M.C. K–41	4	¼	1¼	1⅝	V	10	1¾	9½	1¾	37⅞	⅜	V	13	3½	¼	4	13	3½	¼	4	Opt	33
G.M.C. K–71	4	¼	1¼	1⅝	V	11¾	1¾	9½	1¾	37⅞	⅜	V	15⅛	3¾	¼	4	15⅛	3¾	¼	4	Opt	38
G.M.C. K–101	4	¼	1¼	1⅝	V	11¾	1¾	9½	1¾	37⅞	⅜	V	17¾	4	¼	4	17¾	4	¼	4	Opt	38
Gramm-Pioneer 10 Speed–1	3	1	1½	V	....	12	2¼	14½	2¼	29	1	F	48	2	1	2	26	2	1	1	97	30⅛
Gramm-Pioneer 15–1½–2	3	1	1½	V	....	10¼	2	6	2	39	1¼	F	48½	2	1	2	45⅞	1½	1	2	120	32
Gramm-Pioneer 65–1½–2	3	1	1½	V	....	10¼	2	6	2	39	1¼	F	19¾	1¾	1	4	19¾	1¾	1	4	120	32
Gramm-Pioneer 20–2–2½	3	1¼	1½	V	....	4½	1½	12	1½	32	2	F	45	2	1	4	45	2	1	4	126	32
Gramm-Pioneer 30–3	3	1¼	1½	V	....	11	11½	9	1½	33¾	2	F	22¾	2¼	¼	4	22¾	2¼	¼	4	129¾	36
Gramm-Pioneer 75P–3½	3	1¼	1½	V	....	....	....	....	....	....	....	....	22¾	2¼	¼	4	22¾	2¼	¼	4	129¾	36
Gramm–Pioneer 40–4	3	1¼	1½	V	....	11	1½	9	1½	33¾	2	F	28¾	2¾	¼	4	28¾	2¾	¼	4	144	36
Gramm-Pioneer 50–5–6	3	1¼	1½	V	....	23¼	2	13¾	1⅞	40¾	2	F	32M	2¾	¼	4	32	2¾	¼	4	132	36
G. W. W.	3	1¼	1¾	V	....	12	1¾	11	1¾	37	2	F	49	2½	¼	4	47	1½	1	2	89	32
Hall 2-Worm–2½	3	1	....	....	....	8	1¼	12½	1¼	32	1¼	F	11½	3	¼	4	11½	3	¼	4	144	38
Hall 3½-Worm	3	1	....	....	....	12½	1¾	15½	1¾	38⅛	1½	F	15	3¾	¼	4	15	3¾	¼	4	180	39
Hall 5-Worm	3	1	....	....	....	12½	1¾	15½	1¾	38½	1½	F	18	4	¼	4	18	4	¼	4	144	39
Hall 7-Chain	3	1	....	....	....	12½	1¾	15½	1¾	38⅛	1½	F	18	4	¼	4	18	4	¼	4	144	39
Harvey WOA–2	4	¼	1¼	2	V	11	2	14	1¾	35⅝	2	F	45	2	¼	2	45	2	¼	2	136	32
Harvey WFA–2½	4	¼	1¼	2	V	11	2	14	1¾	35⅝	2	F	50	2¼	¼	2	50	2¼	¼	2	136	32
Harvey WHA–3½	4	¼	2	2	V	12	2	14	1¾	35⅝	2	F	56½	2½	¼	2	56½	2½	¼	2	144	35
Hendrickson N–2½	3	¼	1¼	1	....	....	....	....	....	....	....	....	12	3½	1	4	12	3½	1	4	Opt	32½
Hendrickson M–3½	3	¼	1¼	1	....	....	....	....	....	....	....	....	16	3¾	1	4	16	3¾	1	4	Opt	36
Hendrickson K–5	3	¼	1½	1	....	....	....	....	....	....	....	....	18	4	1	4	18	4	1	4	Opt	38
Higrade A18–1	3	1	1	V	V	9	2	7	2	32	½	R	12	1½	¼	2	12	1½	¼	2	85	32
Higrade B20–1½	3	1	1⅛	V	V	9	2	7	2	32	½	R	18	2	¼	2	18	2	¼	2	100	32
Hurlburt A1½–2	3	....	1¼	1	....	....	....	....	....	....	....	....	22	2	¼	2	22	2	¼	2	132	35½
Hurlburt B2½	3	1	1¼	1	....	....	....	....	....	....	....	....	24	2½	¼	2	23	2½	¼	2	154	34
Hurlburt C3½–4	3	¼	1½	1¼	....	....	....	....	....	....	....	....	26	3	¼	2	25	3	¼	2	144½	34
Hurlburt D5–5½	3	¼	1½	1¼	....	....	....	....	....	....	....	....	28	3	¼	2	27	3	¼	2	144½	34
Huron–Erie 1½	4	....	1	1½	....	....	....	....	....	....	....	....	15	3	¼	2	50	2	1	2	121	33
Huron–Michigan 2½	4	....	1¼	1	....	....	....	....	....	....	....	....	15	3	¼	2	50	2½	1	2	145	33
Indiana 12–1½	3	¼	1	....	....	17	1¼	14	1¼	38½	1	....	17½	2	1	4	17½	2	1	4	108	32
Indiana 20–2	3	¼	1¼	....	....	6	1¼	13	1¼	26⅝	1½	....	44	2	¼	2	44	2	¼	2	126	33
Indiana 25–2½	3	¼	1¼	....	....	6	1¼	13	1¼	26⅝	1½	....	51	2¼	¼	2	51	2¼	¼	2	138	33
Indiana 35–3½	3	¼	1¼	....	....	6	1¼	13	1¼	26⅝	1½	....	56	2½	¼	2	56	2½	¼	2	144	34½
Indiana 51–5	3	¼	1½	....	....	10	1½	17½	1½	26⅝	1½	....	68	3	¼	2	68	3	¼	2	156	37½
International 8—2000 lbs.-Speed Tr	3	¼	1¼	1¼	V	9¾	2¼	17¾	2¼	30¼	1	F	38	2	1	2	36	2	1	2	90	34
International 21–2000 lbs.	3	¼	1¼	1¾	V	6	1½	3½	1⅛	38⅛	1⅛	F	43¾	2¼	¼	2	43¾	2¼	1	2	75	34
International 31–3000 lbs.	3	¼	1¼	1¾	V	6	1½	3½	1⅛	38⅛	1⅛	F	43¾	2¼	¼	2	43¾	2¼	1	2	106½	34
International 41–4000 lbs.	3	¼	1¼	1¾	V	6	1½	3½	1⅛	38⅛	1⅛	F	50⅝	2¼	¼	2	50⅝	2¼	¼	2	111	32¼
International 52–School Bus	4	¼	1¼	1¾	V	9	2¼	14½	2	....	....	....	....	....	....	....	....	....	....	....	....	34
International 61–6000 lbs.	4	¼	1¼	1¾	V	9	2¼	14½	2	....	....	....	50⅝	2¼	¼	2	50⅝	2¼	¼	2	118	34
International 101–10,000	4	¼	1¼	1¾	V	9	2¼	14½	2	....	....	....	73	2½	¼	2	73	2½	¼	2	147⅝	34
Jackson B–3½	3	1	1¼	1½	V	11	....	....	....	32½	1¼	F	58½	3½	¼	2	....	....	....	....	150	36
Kalamazoo G–1	3	¼	2	1	....	15½	....	8	1½	40	1½	F	50	2½	1	1	34	2½	1	1	120	32½
Kalamazoo LG	3	¼	2	1	....	6	1½	16	1¼	39	1½	F	50	2½	1	1	34	2½	1	1	120	32½
Kalamazoo NH	3	¼	2	1	....	20	1¾	19½	1½	42	2	F	52	2¼	¼	1	52	2¼	¼	1	144	33
Kalamazoo HD	3	¼	2	1	....	20	1¾	19½	1½	42	2	F	52	2¼	¼	1	52	2¼	¼	1	120	33
Kalamazoo SK	3	¼	2	1	....	20	1¾	19½	1½	42	2	F	57	2½	¼	1	57	2½	¼	1	152	36
Kalamazoo OK	3	¼	2	1	....	20	1¾	19½	1½	42	2	F	68	3	¼	1	68	3	¼	2	152	36
Kearns H–1	3	1	1	1	H	16	2	16	2	33	1	F	42	2	1	1	21	2	1	2	90	34
Kearns N–2	3	1	1	1	H	18	2	18	2	33	1	F	45	2½	1	1	22	2¼	1	2	120	34
Kelly-Springfield K31–1½	4	¼	1	1	V	7	1½	13	1½	54½	1	V	16¾	1⅞	1	4	16¾	1⅞	1	4	138	34
Kelly-Springfield K34–1½	4	¼	1	1	V	7	1½	13	1½	54½	1	V	17⅜	1⅞	1	4	17⅜	1⅞	1	4	138	34
Kelly-Springfield K35–2½	4	1	1	1	V	7	1½	13	1½	55½	1	V	16¾	1⅞	1	4	16¾	1⅞	1	4	138	34
Kelly-Springfield K38–2½	4	1	1	1	V	7	1½	13	1½	55½	1	V	17⅜	1⅞	1	4	17⅜	1⅞	1	4	138	34
Kelly-Springfield K40–3½	4	¼	1¼	1	V	5	1⅝	24	1½	63⅜	1	V	21	2⅛	1	4	21	2⅜	1	4	145	38
Kelly-Springfield K41–3½–5	4	¼	1¼	1	V	5	1⅝	24	1½	60⅜	1	V	3	4½	¼	12	58	2½	1	2	144	36
Kelly-Springfield K42–3½	4	¼	1¼	1	V	5	1⅝	24	1½	60⅜	1	V	27½	2¾	¼	4	27½	2¾	¼	4	144	36
Kelly-Springfield K50–5	4	¼	1¼	1	V	5	1⅝	24	1½	63⅜	1	V	24	2⅞	1	4	21	2⅜	1	4	145	38
Kelly-Springfield K60–6	4	¼	1¼	1	V	5	1⅝	24	1½	63⅜	1	V	21	2⅞	1	4	21	2⅜	1	4	145	38
Kelly-Springfield K61–5 to 7	4	¼	1¼	1	V	5	1⅝	24	1½	60⅜	1	V	3	4½	¼	12	58	2½	1	2	142	36
Keystone 40–2	3	¼	1	1	V	8	2⅛	8	2⅛	38	1	F	50½	3	1	1	46¾	2	1	1	124	33
Kimball AB–2	3	¼	1¼	1¾	V	6	1½	....	....	39	2	F	45	2	¼	2	45	2	¼	2	135	34
Kimball AC–2½	3	¼	1¾	1¾	V	6	1½	....	....	39	2	F	22½	2¼	¼	4	22½	2¼	¼	4	152	34
Kimball AK3	3	¼	1¼	1¾	V	6	1½	....	....	39	2	F	22½	2¼	¼	4	22½	2¼	¼	4	152	34
Kimball AE–4	3	¼	1½	1¾	V	9	1¾	....	....	42	2	F	56	2½	¼	2	56	2½	¼	2	171	36
Kimball AF–5	3	¼	1½	1¾	V	9	1¾	....	....	42	2	F	69	3	¼	2	69	3	¼	2	171	36
Kissel 1 Ton	3	1	....	1¼	....	12¼	1¾	10	1½	46¾	2	F	11	3	¼	4	11	3	¼	4	101¼	34
Kissel-Utility 1½	3	1	....	1¼	....	12¼	1¾	10	1½	46¾	2	F	19	2	1	4	19	2	1	4	120	34
Kissel-Freighter 2	3	1	....	1¼	....	12¼	1¾	10	1½	49	2	F	14	3½	¼	4	14	3½	¼	4	144	34
Kissel-Heavy-Duty–3½	3	1	....	1¼	....	13¾	1¾	10	1½	52¼	2	F	56	2½	1	2	56	2½	1	2	156	36
Kleiber 1	3	1	1¼	1¾	....	13	1½	16	1¼	36	¾	....	12	3¼	4	4	12	3¼	¼	4	120	34
Kleiber 1½	3	1	1¼	1¾	....	13	1½	16	1¼	38	1¼	....	45	3¼	4	2	12	3¼	¼	2	132	34
Kleiber 2	3	1	1¼	1¾	....	13	1½	16	1¼	40	1¼	....	13½	3½	4	4	13½	3½	¼	4	144	34
Kleiber 2½	3	1	1¼	1¾	....	13	1¾	16	1¼	40	1¼	....	52	3½	4	2	13½	3½	¼	2	150	34
Kleiber 3½	3	1	1¼	1¾	....	13	1¾	16	1¼	40	1¼	....	16	3¾	4	4	16	3¾	¼	4	156	38
Kleiber 5	4	¼	1½	1¾	....	13	1¾	16	1¼	43	1¼	....	18	4	4	4	18	4	¼	4	168	38
Koehler D–1½	3	1	1	¼	V	9¼	2	12½	2	37½	1¼	....	40	1¾	1	2	40	1¾	¼	2	113¼	34
Koehler M–2½	4	1	1¼	¼	V	5¼	1⅝	5¼	1¼	40¼	1¾	....	13	3½	¼	4	13	3½	¼	4	141¾	34
Koehler MCS–2½	4	1	1¼	¼	V	5¼	1⅝	5¼	1¼	40¼	1¾	....	13	3½	¼	4	13	3½	¼	4	129¾	34
Koehler F–3½	4	1	1¼	¼	V	9	1⅝	5¼	1¼	....	....	....	15½	3¾	¼	4	15½	3¾	¼	4	139½	34
Koehler MT–5—Tractor 5	4	1	1¼	¼	V	5¼	1⅝	5¼	1¼	40¼	1¾	....	13	3½	¼	4	13	3½	¼	4	....	34
Lange B	3	1	1	1⅝	V	3½	2¼	11	2	36½	¾	F	30	2	¼	2	18	3	¼	4	114	37
Lange E–2½	3	¼	1	1⅝	V	9	1½	15½	1½	42	1½	F	18	3½	¼	4	18	3½	¼	4	138	33
Larrabee X2–1 Ton	3	1	1	1½	V	6	1¼	14	1¼	34	1¼	F	48	2	1	2	48	2	1	2	108	34
Larrabee J4–1½–2¼ Ton	4	1	1	1½	V	6½	1¼	10	1½	41	1¼	F	24	2	¼	4	24	2	¼	4	108	34
Larrabee K4–2½–3½ Ton	4	¼	1¼	1¾	V	6	1½	11	1½	48	1½	F	27	2¼	¼	4	27	2¼	¼	4	Opt	34
Larrabee L4–3½–4½ Ton	4	¼	1¼	1¾	V	6	1½	11	1½	48	1½	F	60	2½	¼	2	60	2½	¼	2	Opt	36

Replacement Table—Continued

Name, Model and Tonnage	ENGINE												BRAKE LINING								FRAME	
	Piston Rings		Carburetor			Upper Hose		Lower Hose		Fan Belt			Service				Emergency				Length	Width
	No. per Cyl.	Width	Outlet Diameter	Inlet Diameter	Vertical or Horizontal	Length	Width	Length	Width	Length	Width	Type	Length	Width	Thickness	No. of Pieces	Length	Width	Thickness	No. of Pieces	Back of Driver's Seat	Over All
Larrabee W–5–7	4	1/4	1 1/2	2 1/4	V	8 1/2	2	17 1/2	2	44 1/2	2	F	72	3	1/4	2	72	3	1/2	2	152	36
Luedinghaus K2	3	1/4	1 1/4	1 11/16	....	9	1 1/4	5	1 1/4	.....	1 1/2	F	53.4	2 1/2	1/4	2	38 1/2	2 1/2	1/2	2	120	34
Luedinghaus K2–LS	3	1/4	1 1/4	1 11/16	....	9	1 1/4	5	1 1/4	.....	1 1/2	F	53.4	2 1/2	1/4	2	38 1/2	2 1/2	1/4	2	145 1/2	34
Maccar L	3	1/16	1 1/4	1 5/8	V	3 1/4	1 1/2	10	1 1/4	30 3/4	3/4	F	11 5/8	3 1/4	1/4	4	11 5/8	3 1/4	1/4	4	128 1/8	34
Maccar HA	4	1/4	1 1/4	1 5/8	V	11 1/4	1 1/2	17	1 1/2	41 1/2	1 1/2	F	13 1/16	3 1/2	1/4	4	13 1/16	3 1/2	1/4	4	143 5/8	34
Maccar H 2	4	1/4	1 1/4	1 5/8	V	9 1/2	1 1/2	15 1/2	1 1/2	41 1/2	1 1/2	F	13 1/16	3 1/2	1/4	4	13 1/16	3 1/2	1/4	4	141 1/2	34
Maccar M–3	4	1/4	1 1/4	1 5/8	V	11 1/4	1 1/2	15 1/2	1 1/2	41 1/2	1 1/2	F	14 3/4	3 3/4	1/4	4	14 3/4	3 3/4	1/4	4	155 1/2	34
Maccar G	4	1/4	1 1/2	1 7/8	V	10 1/2	2	20 1/2	2	40 3/4	2	F	18	4	1/4	4	18	4	1/4	4	166 5/8	37 1/2
MacDonald A–7 1/2	4	1/4	1 1/4	....	V	12	2	21	1 1/4	35	2	F	70	3	1/4	1	34	3	1/4	1	.....	.....
Mack AB–1 1/2, 2, 2 1/2–Ton–Chain	3	1/16	1 1/4	1 1/2	V	7 1/4	1 1/2	5 3/8	1 1/4	36 5/8	1 1/4	F	12 1/4	4	1/4	4	16 1/2	2 1/2	1/4	4	Opt	33 1/4
Mack Dual Reduction–1 1/2–2,2 1/2	3	1/16	1 1/4	1 1/2	V	7 1/4	1 1/2	5 3/8	1 1/4	36 5/8	1 1/4	F	18 1/4	3 1/2	1/4	4	12	6	1/4	2	Opt	33 1/4
Mack AB–Tractor 5 Ton	3	1/16	1 1/4	1 1/2	V	7 1/4	1 1/2	5 3/8	1 1/4	36 5/8	1 1/4	F	12 1/4	4	1/4	4	16 1/2	2 1/2	1/4	4	77	33 1/2
Mack AC–3 1/2 to 7 1/2 Ton	3	1/4	1 1/2	1 1/2	V	5 3/4	2 1/4	3 1/4	2	.....	.....	V	16 1/8	3	1/4	4	20 1/2	3 1/2	1/4	4	Opt	37 1/2
Mack AC–Tractor 7 to 15 Ton	3	1/4	1 1/2	1 1/2	V	5 3/4	2 1/4	3 1/4	2	.....	.....	V	16 1/8	3	1/4	4	20 1/2	3 1/2	1/4	4	87	37 1/2
Master JI–1 1/2	4	1/4	1 1/4	1 11/16	H	13 1/2	2	12 1/2	1 1/4	30 1/2	1	F	74 1/2	2 1/2	1/8	1	74 1/2	2 1/4	1/4	1	117 3/4	34 1/2
Master JW–1 1/2	4	1/4	1 1/4	1 11/16	V	13 1/2	2	12 1/2	1 1/4	30 1/2	1	F	12	3 1/4	1/4	2	12	3 1/4	1/4	2	Opt	34 1/2
Master JD	4	1/4	1 1/4	1 11/16	V	13 1/2	2	12 1/2	1 1/4	30 1/2	1	F	8 5/8	4 1/2	1/16	2	53 1/4	3	1/16	2	Opt	34 1/2
Master M–2 1/2	4	1/4	1 1/4	1 11/16	V	13 1/2	2	12 1/2	1 1/4	33	1 1/4	F	74	2 1/2	1/8	1	74 1/2	2 1/4	1/4	1	117 3/8	34
Master O 2 1/2	4	1/4	1 1/4	1 11/16	V	13 1/2	2	11 1/2	1 1/4	33	1 1/4	F	75 1/2	2 1/2	1/8	1	74 1/2	2 1/4	1/4	1	156 3/8	34
Master W–2 1/2	4	1/4	1 1/4	1 11/16	V	13 1/2	2	12 1/2	1 1/4	31	1 1/4	F	13 1/4	3 1/2	1/4	2	13 1/4	3 1/2	1/4	2	117 3/8	34
Master WL–2 1/2	4	1/4	1 1/4	1 11/16	V	13 1/2	2	12 1/2	1 1/4	31	1 1/4	F	13 1/4	3 1/2	1/4	2	13 1/4	3 1/2	1/4	2	156 3/8	34
Master D–2 1/2	4	1/4	1 1/4	1 11/16	V	13 1/2	2	12 1/2	1 1/4	35	1 1/4	F	8 5/8	4 1/2	1/16	2	54 1/16	3	1/16	2	117 3/8	34
Master DL–2 1/2	4	1/4	1 1/4	1 11/16	V	13 1/2	2	12 1/2	1 1/4	35	1 1/4	F	8 5/8	4 1/2	1/16	2	54 1/16	3	1/16	2	156 3/8	34
Master DD–2 1/2	4	1/4	1 1/4	1 11/16	V	13 1/2	2	12 1/2	1 1/4	35	1 1/4	F	8 5/8	4 1/2	1/16	2	56 1/4	3	1/16	2	Opt	34
Master T–6 Tractor	4	1/4	1 1/4	1 11/16	V	13 1/2	2	12 1/2	1 1/4	33	1 1/2	F	74 1/2	2 1/2	1/8	1	74 1/2	2 1/4	1/4	1	72 1/8	34
Master A–3 1/2	4	1/4	1 1/2	1 11/16	V	13 1/2	2	15	1 1/4	35	2	F	16	3 3/4	1/4	2	16	3 3/4	1/4	2	147 3/4	36 1/4
Master AL–3 1/2	4	1/4	1 1/2	1 11/16	V	13 1/2	2	15	1 1/4	35	2	F	16	3 3/4	1/4	2	16	3 3/4	1/4	2	183 3/4	36 1/4
Master E–3 1/2	4	1/4	1 1/2	1 11/16	V	13 1/2	2	15	1 1/4	35	2	F	13 1/4	6	1/4	2	23	4	1/4	4	147 3/4	36 1/4
Master Y–4	4	1/4	1 1/2	1 11/16	V	13 1/2	2	15	1 1/2	35	2	F	13 1/4	6	1/4	2	23	4	1/4	4	Opt	36 1/4
Master EL–3 1/2	4	1/4	1 1/2	1 11/16	V	13 1/2	2	15	1 1/4	35	2	F	13 1/4	6	1/4	2	23	4	1/4	4	183 3/4	36 1/4
Master B–5	4	1/4	1 1/2	1 11/16	V	13 1/2	2	15	1 1/2	37	2	F	13 1/4	4	1/4	2	18	4	1/4	2	162 7/8	39
Master BL–5	4	1/4	1 1/2	1 11/16	V	13 1/2	2	15	1 1/2	37	2	F	13 1/4	4	1/4	2	18	4	1/4	2	186 7/8	39
Master F–5	4	1/4	1 1/2	1 11/16	V	13 1/2	2	15	1 1/2	37	2	F	13 1/4	6	1/4	2	23	4	1/4	4	162 7/8	39
Master FL–5	4	1/4	1 1/2	1 11/16	V	13 1/2	2	15	1 1/2	37	2	F	13 1/4	6	1/4	2	23	4	1/4	4	186 7/8	39
Master DDT–6	4	1/4	1 1/2	1 1/16	V	13 1/2	2	12 1/2	1 1/2	35	1 1/4	F	8 5/8	4 1/2	1/16	2	56 1/4	3	1/16	2	Opt	34 1/2
Master DT–6 Tractor	4	1/4	1 1/4	1 11/16	V	13 1/2	2	12 1/2	1 1/4	35	1 1/4	F	8 5/8	4 1/2	1/16	2	54	3	1/16	2	72 1/8	43
Maxwell 1 1/2	3	1/16	1	1	V	6 1/4	2 1/8	7 3/4	2 1/8	44 1/2	1 1/2	....	16	1 3/4	1/4	4	16	1 3/4	1/4	4	102	36
Menominee Hurryton–1	3	1/4	1 1/4	1 3/4	....	6	1 1/2	12	1 1/4	40	1 1/4	F	11	2 1/2	1/4	4	11	2 1/2	1/4	4	102 1/16	33
Menominee H–1 1/2	3	1/4	1 1/4	1 3/4	....	.....	.....	.....	.....	.....	.....	.....	13 1/2	3 1/2	1/4	8	.....	.....	.....	.....	122	32
Menominee D–2	3	1/4	1 1/4	1 3/4	....	3	1 3/4	3	1 1/2	37 3/4	2	F	13 1/2	3 1/2	1/4	8	42 1/2	2 1/2	1/16	2	146	32
Menominee HT–1 1/4	3	1/4	1	1 1/2	....	9 1/4	1 3/4	10 1/2	1 1/4	33 3/4	1 1/4	F	47 1/16	2 1/2	1/16	2	33 1/4	2 1/2	1/16	2	102 3/4	32
Menominee J–5	3	1/4	1 1/2	2	....	3	1 3/4	3	1 3/4	40 3/4	2	F	69 1/16	3 1/2	1/16	2	52	2 1/2	1/16	2	149	38
Menominee G–3 1/2	3	1/4	1 1/4	1 3/4	....	3	1 3/4	3	1 3/4	37 3/4	2	F	15 5/8	3 3/4	1/4	4	15 5/8	3 3/4	1/4	4	149	36
Moline 10	3	1/16	.....	1 1/4	H	10 1/2	2 1/4	4 1/2	2 1/4	.....	2	F	21	2 1/2	1/4	2	20	2	1/16	2	108	32
Moreland BX–1 1/2	3	1/16	1 1/4	1 1/2	H	8	1 1/2	11 1/4	1 1/2	42	1 1/2	F	12	3 1/4	1/4	4	12	3 1/4	1/4	4	108	34
Moreland EX–2	3	1/16	1 1/4	1 1/2	H	9	1 1/2	13	1 1/2	42	1 1/2	F	12	3 1/4	1/4	4	12	3 1/4	1/4	4	132	34
Moreland AX–3	3	1/16	1 1/4	1 1/2	H	9	1 1/2	13	1 1/2	42	1 1/2	F	13 1/2	3 1/2	1/4	4	13 1/2	3 1/2	1/4	4	174	38
Moreland RX–5	3	1/16	1 1/4	1 1/2	H	9	2	19	1 1/2	42	1 1/2	F	16	3 3/4	1/4	4	16	3 3/4	1/4	4	192	.....
Napoleon 9–1	3	1/16	1	1/16	H	6 1/2	2 1/4	14	2 1/4	39	1	F	21	4	1/16	1	30	2 1/2	1/16	1	100 3/4	35 1/4
Napoleon 11–1 1/2	3	1/16	1	1/16	H	6 1/2	2 1/4	14	2 1/4	39	1	F	21	4	1/16	1	30	2 1/2	1/16	1	100 3/4	35 1/4
Nash 2018–1–1 1/2	4	1/4	1 1/4	....	....	3	1 1/2	7 3/4	1 1/4	36	1	F	49 1/8	2	1/16	2	20 1/16	2 1/2	1/16	1	104 1/2	30 1/2
Nash 3018–2–2 1/2	4	1/4	1 1/4	1 1/4	....	3	1 1/2	.....	.....	44	1	F	50 5/8	3	1/16	2	20 1/16	2 1/2	1/16	1	118 1/4	31 1/2
Nash 4017–2–2 1/2	3	1/4	1 1/4	1 1/4	....	7	1 1/2	.....	.....	44	2	F	49 1/4	2 1/2	1/4	4	25 1/16	2 1/2	1/4	1	117 1/8	38 1/2
Nelson & LeMoon G–2	4	1/4	1 1/4	1/16	....	.....	.....	.....	.....	.....	.....	.....	12	3 1/4	1/4	2	12	3 1/4	1/4	2	Opt	.....
Nelson & LeMoon G–3	4	1/4	1 1/4	1/16	....	.....	.....	.....	.....	.....	.....	.....	12	3 1/4	1/4	2	12	3 1/4	1/4	2	Opt	.....
Nelson & LeMoon G–4	4	1/4	1 1/4	1/16	....	.....	.....	.....	.....	.....	.....	.....	16 1/2	3 3/4	1/4	2	16 1/2	3 3/4	1/4	2	Opt	.....
Nelson & LeMoon G–5	4	1/4	1 1/2	1/16	....	.....	.....	.....	.....	.....	.....	.....	18	4	1/4	2	18	4	1/4	2	Opt	.....
Netco DK–2	3	1/16	1 1/4	1 1/16	V	12	1 1/2	16	1 1/4	40 1/16	1 1/2	F	13 1/16	3 1/2	1/4	4	13 1/16	3 1/2	1/4	4	Opt	34 1/4
Netco HL–2 1/2–3	3	1/16	1 1/2	1 1/16	V	13	1 1/2	16	1 1/4	41 1/4	1 1/2	F	13 1/16	3 1/2	1/4	4	13 1/16	3 1/2	1/4	4	139	34 1/4
Niles E–2	3	1/16	1 3/4	1 3/4	V	8	1 1/4	11	1 1/4	30	3/4	F	12	3 1/4	1/4	2	12	3 1/4	1/4	2	147	56
Noble A21–1 1/4	4	1/16	1	1 1/16	....	10	1 3/4	12 1/2	1 1/4	33 1/2	1 1/2	F	19	2	1/4	4	19	2	1/4	2	102	34
Noble B31–1 1/2	4	1/16	1	1 1/16	....	7	1 1/8	16 1/2	1 1/4	34 1/4	1 1/8	F	43	2	1/4	2	43	2	1/4	2	126	34
Noble D51–2 1/2	4	1/4	1 1/4	1 1/16	....	9	2	12	1 1/4	34 1/4	1 1/8	F	21	2 1/4	1/4	4	21	2 1/4	1/4	4	.....	34
Noble E71—3 1/2	4	1/4	1 1/4	1 1/16	....	14 1/2	2	16	1 1/4	34 1/4	1 1/8	F	57	2 1/2	1/4	2	57	2 1/2	1/4	2	.....	36
Northway B–2	3	1/16	1 1/4	1 3/4	V	5 1/4	2 1/4	13 7/8	1 1/4	46 11/16	5/8	V	50 1/2	2 1/4	1/4	2	50 1/2	2 1/4	1/4	2	133	33
Northway B–3	3	1/16	1 1/16	1 3/4	V	5 1/4	2 1/4	13 7/8	1 1/4	46 11/16	5/8	V	54	2 1/2	1/4	2	54	2 1/2	1/4	2	173	34 1/2
Norwalk 25E–1	3	1/16	1	1/16	V	9	2 1/4	19	2 1/4	29	3/4	F	16 1/2	2 1/4	1/4	2	16 1/2	1 1/2	1/16	2	100	36
Norwalk 35E–1 1/2	3	1/16	1	1/16	V	9	2 1/4	19	2 1/4	29	3/4	F	16 1/2	2 1/4	1/4	2	16 1/2	1 1/2	1/16	2	124	34
Norwalk 35E Spec.–1 1/2	3	1/16	1	1/16	V	11	2	18	1 1/2	36	2	F	19	2	1/4	2	19	2	1/4	2	124	34
Ogden A–1	3	1/16	1	1	V	12	2	6	2	44	3/4	V	11	2 1/2	1/4	4	11	2 1/2	1/4	4	108	33 1/4
Ogden D–1 1/2	3	1/16	1	1	H	13	2	12	2	44	3/4	V	10 11/16	3	1/4	4	10 11/16	3	1/4	4	120	33 1/4
Ogden E–2 1/2	3	1/16	1 1/4	2	H	10	1 1/16	14	1 1/16	30	1 1/4	F	52	2 1/4	1/4	1	52	2 1/4	1/4	1	144	33 1/4
Ogden F–3 1/2	3	1/4	1 1/4	2	H	11	1 1/2	16	1 1/2	36	1 1/2	F	15 5/8	3 3/4	1/4	4	10 3/8	3 3/4	1/4	4	168	33 1/4
Ogden G–5	3	1/4	1 1/2	3	....	9	2	18	2	40	2	F	11	6	1/4	2	25	4	1/4	4	168	33 1/4
O. K.–1 1/2	4	1/4	1 1/4	1 11/16	V	12	2	13 1/2	1 1/4	36	2	F	53	2 1/2	1/16	2	38	2 1/2	1/16	2	117	34
O. K.–2 1/2	4	1/4	1 1/4	1 11/16	V	12	2	13 1/2	1 1/4	36	2	F	62	2 1/2	1/16	2	48	2 1/2	1/16	2	121	35
O. K.–3 1/2	4	1/4	1 1/4	1 11/16	V	12	2	13 1/2	1 1/4	38	2	F	62	2 1/2	1/16	2	48	2 1/2	1/16	2	133	34
Old Reliable A–1 1/2	3	1/4	1 1/4	1 1/4	....	.....	.....	.....	.....	.....	.....	.....	48	2 1/2	1/4	1	48	2 1/2	1/4	1	105	32
Old Reliable B–2 1/2	3	1/4	1 1/4	1 1/4	....	.....	.....	.....	.....	.....	.....	.....	54	2	1/4	1	54	2	1/4	1	144	32
Old Reliable C–3 1/2	3	1/4	1 1/4	1 1/4	....	.....	.....	.....	.....	.....	.....	.....	60	2 1/2	1/4	1	60	2 1/2	1/4	1	150	32
Old Reliable D–5	3	1/4	1 1/2	1 1/2	....	.....	.....	.....	.....	.....	.....	.....	72	3	1/4	1	72	3	1/4	1	156	34
Old Reliable K. L. M.–7	3	1/4	1 1/2	1 1/2	....	.....	.....	.....	.....	.....	.....	.....	54	3 1/2	1/4	1	60	4	1/4	1	158	36
Oldsmobile T–1	3	1/16	1 1/4	1 3/8	V	5	1 1/4	11	1 1/4	37 11/16	3/4	V	42 1/4	2	1/4	1	41 1/16	2	1/16	1	92 1/16	34
Olympia A–2 1/2	4	1/4	1 1/4	1 1/2	V	13	2	12	1 1/4	34	2	F	13 1/2	3 1/2	1/4	2	13 1/2	3 1/2	1/4	2	Opt	32 1/2
Oneida B9–1 1/2	3	1/16	1 1/4	1 1/2	H	9 1/2	1 1/4	9 1/2	1 1/4	38 1/2	2	F	48	2 1/2	1/16	2	34	2 1/2	1/16	2	114	34
Oneida C9–2 1/2	3	1/16	1 1/4	1 1/2	H	9 1/4	1 1/4	9 1/2	1 1/4	38 1/2	2	F	58	2 1/2	1/16	2	43	2 1/2	1/16	2	138	34
Oneida D9–3 1/2	3	1/4	1 1/4	1 1/2	H	7	1 1/2	9 1/2	1 1/2	40	2	F	16	3 3/4	1/16	4	16	3 3/4	1/16	4	157	36
Oneida E9–5	3	1/4	1 1/4	1 1/2	H	7 1/2	1 3/4	9 1/2	1 1/2	40	2	F	18	4	1/16	4	18	4	1/16	4	177	38
Packard EC	3	1/4	1 5/8	1 3/4	V	6 1/4	1 1/2	10 3/8	1 1/2	41 1/16	5/8	V	7 11/16	4 3/4	1/4	2	14	2	1/16	4	132	31 1/8
Packard ED	3	1/4	1 5/8	1 3/4	V	6 1/4	1 1/2	10 3/8	1 1/2	43 1/16	5/8	V	9 1/16	4 3/4	1/4	2	17	3	1/16	4	144	39
Packard EF	3	1/4	1 5/8	1 3/4	V	6 1/4	1 1/2	10 3/8	1 1/2	43 1/16	5/8	V	9 1/16	6 1/2	1/4	2	18 3/4	3 1/2	1/16	4	144	39
Packard EX	3	1/4	1 5/8	1 3/4	V	6 1/4	1 1/2	10 3/8	1 1/2	41 1/16	5/8	V	7 11/16	4 3/4	1/4	2	14	2	1/16	4	132	31 1/8
Paige 54–20–2 1/2	3	1/4	.....	1 1/4	.....	10 1/2	1 1/2	10 1/2	1 1/2	37 5/8	1 1/4	F	49 5/8	2 1/4	1/4	2	49 5/8	2 1/4	1/4	2	126	33
Paige 51–18–3 1/2	3	1/4	.....	1 1/4	.....	13	1 1/2	13	1 1/2	37 5/8	2	F	15 5/8	3 3/4	1/4	4	15 5/8	3 3/4	1/4	4	144	35
Paige 52–19–1 1/2	3	1/4	.....	1 1/4	.....	8	1 1/4	12	1 1/4	36	2	F	11 1/16	3 1/4	1/4	4	11 1/16	3 1/4	1/4	4	126	33
Parker C22–1	3	1/4	1	1 1/4	V	16	1 1/4	12 1/2	1 1/4	39	1 1/2	F	10 1/2	3	1/4	4	10 1/2	3	1/4	4	95	33
Parker G1–2 1/2	3	1/4	1 1/4	1 1/2	V	19	1 3/4	16 1/2	1 1/2	38	2	F	10 3/4	5	1/4	2	19	2 1/2	1/4	4	127	33

Replacement Table—Continued

Name, Model and Tonnage	ENGINE												BRAKE LINING								FRAME	
	Piston Rings		Carburetor			Upper Hose		Lower Hose		Fan Belt			Service				Emergency				Length	Width
	No. per Cyl.	Width	Outlet Diameter	Inlet Diameter	Vertical or Horizontal	Length	Width	Length	Width	Length	Width	Type	Length	Width	Thickness	No. of Pieces	Length	Width	Thickness	No. of Pieces	Back of Driver's Seat	Over All
Parker J20–3½	3	¼	1¼	1½	V	19	1¾	16½	1½	38	2	F	10¾	5	¼	2	19	3½	¼	4	139½	33
Parker M20–5	3	¼	1½	1¾	V	14	1¾	18	1¾	40½	2	F	10¾	5	¼	2	24½	4	¼	4	145	37
Patriot Revere–1	3	1/16	1 1/16	3/8	H	8	2	9	2	39	1¼	F	40½	1¾	1/16	1	40½	1¾	1/16	1	93	66
Patriot Lincoln Special–2	3	1/16	1 1/16	3/8	V	6	1¼	8	1½	37	1¾	F	40½	1¾	1/16	1	40½	1¾	1/16	1	113	67½
Patriot Washington Special–3	3	¼	1 1/16	3/8	V	11	1½	10	2	39	2	F	58	2½	¼	1	43	2½	¼	1	150	67½
Pierce Arrow–2–X–5	3	1/16	1 1/16	1 5/16	V	16 3/16	2 5/16	14¼	2 1/16	43½	1½	F	22¼	2¼	¼	4	22¼	2¼	¼	4	125 1/16	34 1/16
Pierce Arrow–3½–W–2	3	1/16	1 1/16	1 7/8	V	11	2 5/16	15½	2 1/16	43½	1½	F	9 1/16	6	¼	2	18	4 5/16	1/16	4	133¼	38 1/16
Pierce Arrow–5–R–10	3	1/16	1 1/16	1 7/8	V	11	2 5/16	15½	2 1/16	43½	1½	F	9 1/16	6	¼	2	20 7/16	4 5/16	1/16	4	139¼	38 1/16
Pioneer 59AA–1	3	1/16	1¼	1½	V	13	2	12	2	35	1	F	14	1¾	1/16	4	14	1¾	1/16	4	102	30
Pittsburgher 2½	3	1/16	1¼	1¼	V	6	1½	12	1¼	37	1	F	52	2¼	¼	2	52	2¼	¼	2	136	33
Rainier R–8–2	3	1/16	1 1/16	1/16	V	5	1½	13	1½	31½	1¼	F	44½	2	¼	1	44½	2	¼	1	.....	34
Rainier R6–1½	3	1/16	1 1/16	1/16	V	9 3/16	1½	14¾	1½	41	1½	F	19	2	¼	2	19	2	¼	2	113	34
Rainier R–19–1	3	1/16	1 1/16	1/16	V	8½	1½	14	1½	41	1½	F	19	2	1/16	2	19	2	1/16	2	100	34
Rainier R–11–¾	3	1/16	1 1/16	1/16	V	9	1½	14½	1½	42	1½	F	11¼	3	1/16	2	11¼	3	1/16	2	90	34
Ranger TK–20–2	3	¼	1 1/16	1½	H	11¾	1 1/16	10	1¼	33¾	1	F	11½	3¼	.....	2	11½	3¼	1/16	2	106½	33
Reliance 10A–1½	4	¼	1¼	3/8	V	10½	2	13½	1 3/16	35	2	F	17	2	1/16	4	17	2	1/16	4	122	32
Reliance 20B–2½	4	¼	1¼	3/8	V	10½	2	13½	1 3/16	35	2	F	17	2	1/16	4	17	2	1/16	4	127	32
Reo F—1500–2500 lbs	3	1/16	1	1	V	5½	1	5½	1	39 1/16	7/8	F	43	2¼	1/16	1	39 5/16	2	1/16	1	82	30
Republic 10-1-10E-1	3	1/16	1	.....	V	12¼	2	6	2	40 1/16	1¼	F	21¼	2½	1/16	4	19¾	2¼	1/16	4	.....	34
Republic 11X–1½	3	1/16	1	.....	V	12¼	2	6	2	40 1/16	1¼	F	25¼	2½	1/16	4	24¼	2¼	1/16	2	118	34
Republic 19–2½	3	1/16	1¼	.....	V	8	1½	11¾	1¼	32 1/16	1¼	F	25¼	2½	1/16	4	24¼	2¼	1/16	2	121	34
Republic 20–3½	3	1/16	1¼	.....	V	7¼	1¾	5½	1¼	36¼	1½	F	55¾	3½	1/16	2	30 1/16	4½	1/16	1	146	37
Republic Rapid Transit–¾	3	1/16	1	.....	V	12	2¼	18½	2¼	31 1/16	1	F	19	2	1/16	4	18	2	1/16	4	95	31
Rowe CW–1½	3	1/16	1¼	1/16	....	10½	1¾	10½	1½	32½	1⅛	F	19	2	1/16	8	19	2	1/16	8	113	33
Rowe CDW–2	3	1/16	1¼	1/16	....	10½	1¾	10½	1½	32½	1⅛	F	45	2	¼	4	45	2	¼	4	123	33
Rowe CDW–2½	3	1/16	1¼	1/16	V	20	1¾	15½	1½	32½	1⅛	F	51½	2½	¼	4	51½	2½	¼	4	123	33
Rowe GSW–3	3	1/16	1¼	1/16	....	20	1¾	15½	1½	36¼	2	F	51½	2½	¼	4	51½	2½	¼	4	140	33
Rowe HW–4	3	1/16	1¼	1/16	....	20	1¾	15½	1½	36½	2	F	56½	2½	¼	4	56½	2½	¼	4	146	36
Rowe FW–5	3	1/16	1¼	1/16	....	20	1¾	15½	1½	36¼	2	F	68	3	1/16	4	68	3	1/16	4	153	38½
Rowe GPW–3	3	1/16	1¼	1/16	....	10	1¼	6	1¾	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	152	33
Rumely A–1½	4	1/16	1 1/16	1/16	V	10½	1¾	10½	1¼	37	2	F	18	2	1/16	4	18	2	1/16	4	122	34
Samson 15–¾	3	1/16	1 1/16	1 3/8	V	V	6½	1¼	7¾	1¼	35 11/16	11/16	V	37	2	1/16	1	35¾	1¾	1/16	1	108¼	39½
Samson 25–1¼	3	1/16	1 1/16	1 3/8	V	V	6½	1¼	7¾	1¼	37 11/16	11/16	V	43 3/16	2	1/16	1	37 1/16	1¾	1/16	1	108¼	39½
Sanford W15–1½	3	1/16	1	1	H	.....	.....	.....	.....	.....	.....	.....	22¼	2¼	1/16	4	22¼	2¼	1/16	4	.....	.....
Sanford 25–2½	3	1/16	1¼	1¼	V	.....	.....	.....	.....	.....	.....	.....	22¼	2½	1/16	4	22½	2¼	1/16	4	.....	.....
Sanford 35–3½	3	1/16	1¼	1¼	V	.....	.....	.....	.....	.....	.....	.....	55¾	2½	1/16	2	55¾	2½	1/16	2	.....	.....
Sanford 50–5	3	1/16	1¼	1¼	V	.....	.....	.....	.....	.....	.....	.....	65	2	¼	2	65	2	¼	2	.....	.....
Schacht F–2	4	¼	1¼	2	H	11	2	14	1¼	37½	2	F	8¼	3	¼	4	13½	3	¼	4	140	35¾
Schacht F–3	4	¼	1¼	2	H	11	2	14	1¼	37½	2	F	8¼	3	¼	4	13½	3	¼	4	140	35¾
Schacht E–4	4	¼	1¼	2	H	10½	2	13½	1¼	39¼	7/8	V	8¼	3	¼	4	15	4	3/8	4	152	35¾
Schacht E–5	4	¼	1¼	2	H	10½	2	13½	1¼	39¼	7/8	V	8¼	3	¼	4	15	4	3/8	4	152	35¾
Schacht E–7	4	¼	1¼	2	H	10½	2	13½	1¼	39¼	7/8	V	8¼	3¼	¼	4	15	4	3/8	4	152	35¾
Schwartz A–1	3	1/16	1	1/16	V	9½	2¼	13	2¼	29½	1/8	F	15 5/16	1¾	1/16	4	15 5/16	1¾	1/16	4	.....	.....
Schwartz K–2	4	1/16	1	1/16	H	10	1¾	18	1¼	33 1/16	2	F	20¼	2¼	¼	4	20¼	2¼	¼	4	120	34
Schwartz LS–L–LL–3	4	¼	1¼	1/16	H	10½	2	15	1¼	33 1/16	2	F	51½	2¼	¼	2	51½	2¼	¼	2	.....	34
Schwartz MS–M–ML–5	4	¼	1¼	1/16	H	12½	2	17	1¼	38 3/16	2	F	69½	3	¼	2	69½	3	¼	2	.....	36
Selden Unit 30	3	1/16	1	1 1/16	V	12	2	.....	.....	41	1¼	F	11 1/16	3¼	¼	4	11 1/16	3¼	¼	4	114	34
Selden Unit 50	3	1/16	1	1 1/16	V	3¾	1¼	12	1¼	31	1½	F	13	3½	¼	4	13	3½	¼	4	134	34
Selden Unit 31	3	1/16	1	1 1/16	V	3¾	1¼	12	1¼	31	1½	F	13	3½	¼	4	13	3½	¼	4	176	34
Selden Unit 70	3	1/16	1¼	1 1/16	V	9	1¾	5½	1¾	34¼	2	F	15 5/16	3¾	¼	4	15 5/16	3¾	¼	4	153	37½
Selden Unit 51	3	1/16	1½	1 1/16	V	7½	1½	15½	1¼	31½	2	F	13	3½	¼	4	13	3½	¼	4	134	34
Selden Unit 90	3	¼	1½	1 1/16	V	7	1¾	16¾	1½	40 3/16	2	F	17 1/16	4	¼	4	17 1/16	4	¼	4	153	37½
Service 12–¾	3	1/16	1 1/16	1 1/16	V	13½	2½	14½	2½	35½	1¾	F	10 1/16	2½	¼	4	10 1/16	2½	¼	4	101½	37 1/16
Service 15—1¼	3	1/16	1 1/16	1 1/16	V	10	1¾	2	1¼	35	2	F	19 5/16	1¾	¼	4	19 5/16	1¾	¼	4	101½	37 1/16
Service 21–1½	3	1/16	1 1/16	1 1/16	H	10	2	6	1¾	37 3/16	1	F	12	3¼	¼	2	12	3¼	¼	2	109½	34
Service 32–2	4	¼	1 1/16	1 1/16	V	10	2	8	1¼	33	1¼	F	12	3¼	¼	2	12	3¼	¼	2	121	34
Service 37–2	4	¼	1 1/16	1 1/16	V	10	2	8	1¼	33	1¼	F	12	3¼	¼	2	12	3¼	¼	2	121 1/16	34
Service 52–3	4	¼	1 1/16	1 1/16	V	10	2	8	1¼	33	1¼	F	13½	3½	¼	2	13½	3½	¼	2	131/8	34
Service 72–3½	4	¼	1 1/16	1 1/16	V	10	2	8	1¼	33	1¼	F	16	3¾	¼	2	16	3¾	¼	2	150¼	38
Service 77–4	4	¼	1 1/16	1 1/16	V	10	2	10	1¼	38¼	1½	F	16	3¾	¼	2	16	3¾	¼	2	145¾	38
Service 102–6	4	¼	1 1/16	1 1/16	V	10	2	10	1¼	38¼	1½	F	18½	4	¼	2	18½	4	¼	2	145¾	38
Signal NF–1	4	1/16	1 1/16	1 1/16	V	7¼	1½	12	1½	39¼	1¼	....	11	3	¼	4	11	3	¼	4	120	.....
Signal H 1½	3	1/16	1 1/16	1 1/16	V	8	1½	9	1¼	30½	1¼	....	12	3¼	¼	4	12	3¼	¼	4	120	34
Signal J–2½	3	1/16	1 1/16	1 1/16	V	10	1½	12	1¼	30½	1¼	....	13½	3½	¼	4	13½	3½	¼	4	126	34
Signal M 3½	3	1/16	1 1/16	1 1/16	V	5½	1½	12	1¼	34¼	1¼	....	16	3¾	¼	4	16	3¾	¼	4	168	38
Signal R–5	3	¼	1 1/16	1 1/16	V	8	2	16	2	41	2	....	18	4	¼	4	18	4	¼	4	172	38
Standard 75–¾–1	3	1/16	1	1 1/16	H	10½	2 1/16	14¾	1 1/16	39¼	1¼	F	11¾	2½	¼	4	11¾	2½	¼	4	108	32
Standard I-K–1–1½	3	1/16	1	1 1/16	V	10½	2 1/16	14¾	1 1/16	39¼	1¼	F	10 1/8	3	¼	4	10 1/8	3	¼	4	120	32
Standard 76–2½–3	3	1/16	1¼	1 1/16	V	.....	1 1/8	12	1 1/8	31¼	1¼	F	13 1/16	3½	¼	4	13 1/16	3½	¼	4	122	32
Standard 66–3½–4	3	1/16	1¼	1 1/16	V	12	2 1/16	18	1 5/8	36½	1½	F	15 5/16	3¾	¼	4	15 5/16	3¾	¼	4	144	38
Standard 5K–5–7	3	¼	1½	1 1/16	V	8	2 1/16	3½	2 3/16	42¼	2	F	17 1/16	4	¼	4	17	4	¼	4	144	38
Sterling 1½	3	¼	1¼	¼	V	11	1½	19	1½	38	1½	F	11¾	3¼	¼	8	11¾	3¼	¼	8	120	33½
Sterling 2	3	¼	1¼	¼	V	11	1½	19	1½	38	1½	F	13 3/16	3½	¼	8	13 3/16	3½	¼	8	120	33½
Sterling 2½	3	¼	1¼	¼	V	11	1½	19	1½	38	1½	F	13 3/16	3½	¼	8	13 3/16	3½	¼	8	138	34
Sterling 3½	3	¼	1½	¼	V	14 5/8	1½	22	1½	40½	1½	F	15¾	3¾	¼	8	15¾	3¾	¼	8	144	38
Sterling 5-Worm	3	¼	1½	¼	V	11	1½	19	1½	40½	1½	F	17 1/16	4	¼	8	17 1/16	4	¼	8	158	38
Sterling 5-Chain	3	¼	1½	¼	V	11	1½	19	1½	40½	1½	F	56½	3½	¼	2	34 1/16	4	¼	1	158	38
Sterling 7½	3	¼	1½	¼	V	11	1½	19	1½	40½	1½	F	56½	3½	¼	2	34 1/16	4	¼	1	158	38
Stewart M7–2	3	1/16	.....	1 1/16	.....	.....	.....	.....	.....	.....	.....	.....	50 5/8	2	1/16	2	8	5	1/16	2	132¾	32
Stewart M15–1	3	1/16	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	41 3/8	2	1/16	2	22¾	2	1/16	1	99½	32
Stewart M9–1½	3	1/16	.....	1	.....	.....	.....	.....	.....	.....	.....	.....	48½	2	1/16	2	8	5	1/16	2	119½	32
Stewart M10–3½	3	1/16	.....	1 3/16	.....	.....	.....	.....	.....	.....	.....	.....	60	3	1/16	2	8	5	1/16	2	139¾	32
Stewart M7X	3	¼	.....	1 1/16	.....	.....	.....	.....	.....	.....	.....	.....	50 5/8	2	1/16	2	8	5	1/16	2	132¾	32
Stewart M10X	3	¼	.....	1 3/8	.....	.....	.....	.....	.....	.....	.....	.....	60	3	1/16	2	8	5	1/16	2	138	32
Stoughton C–¾	3	1/16	1	1 3/8	V	14	2¼	14	2¼	33	1½	F	56½	2½	1/8	2	55	2¼	1/8	2	92½	34
Stoughton A–1	4	¼	1	1 3/8	V	18	1¼	15	1¼	39¼	1½	F	16¾	1¾	¼	4	16	1¾	¼	4	88	34
Stoughton B–1½	4	¼	1	1 3/8	V	18	1¼	15	1¼	39¼	1½	F	19	2	1/16	4	19	2	1/16	4	116	34
Stoughton D–2	4	1/16	1¼	1 5/8	V	9	1½	15	1¼	40	2	F	23	2¼	¼	4	23	2¼	¼	4	116	34
Stoughton F–3	3	¼	1¼	1 5/8	V	12	2	15	1¼	44	2	F	23	2¼	¼	4	23	2¼	¼	4	127	36
Super Truck 50	3	¼	1¼	1 1/16	V	19	1¾	19	1½	37½	1 7/8	F	51½	2¼	¼	2	51½	2½	¼	2	135	34
Super Truck 70	3	¼	1¼	1 1/16	V	19½	1¾	19	1½	37½	1 7/8	F	55½	2½	¼	2	55½	2½	¼	2	144	34
Super Truck 100	3	¼	1½	1 1/16	V	6	1¾	19	1¾	42	1 7/8	F	68	3	¼	2	51½	3	¼	2	144	34
Thomart Speed	3	1/16	1¼	1 1/16	V	9	1¼	7¼	1¼	36½	2	F	19 3/16	1¾	¼	4	19 3/16	1¾	¼	4	102	34
Tiffin GW–1½	3	1/16	1¼	1¼	V	.....	.....	.....	.....	.....	.....	.....	46	2	¼	1	46	2	¼	1	114	35
Tiffin MW–2½	3	1/16	1¼	1¼	V	.....	.....	.....	.....	.....	.....	.....	52	2¼	¼	1	52	2¼	¼	1	138½	32¾
Tiffin F–35–3½	3	1/16	1¼	1¼	V	.....	.....	.....	.....	.....	.....	.....	58	2½	¼	1	58	2½	¼	1	151	35½
Tiffin TW–5	4	¼	1½	1½	V	.....	.....	.....	.....	.....	.....	.....	68	3	¼	1	68	3	¼	1	156	38½
Tiffin UW–6	4	¼	1½	1½	V	.....	.....	.....	.....	.....	.....	.....	68	3	¼	1	68	3	¼	1	156	38½
Titan 3½	4	¼	1½	1¾	....	.....	.....	.....	.....	.....	.....	.....	60	2¼	1/16	2	14	4½	1/16	2	144	34

Replacement Table—Continued

Name, Model and Tonnage	ENGINE												BRAKE LINING								FRAME	
	Piston Rings		Carburetor			Upper Hose		Lower Hose		Fan Belt			Service				Emergency				Length	Width
	No. per Cyl.	Width	Outlet Diameter	Inlet Diameter	Vertical or Horizontal	Length	Width	Length	Width	Length	Width	Type	Length	Width	Thickness	No. of Pieces	Length	Width	Thickness	No. of Pieces	Back of Driver's Seat	Over All
Titan 5–6	4	1/4	1 1/2	1 3/4									90	2 1/4	1/8	2	14	4 1/2	1/8	2	144	34
Titan 2½	4	1/4	1 1/4	1 1/4									54	2 1/2	1/8	2	26	4	1/8	1	144	32
Tower J–1½	3	1/8	1 1/4	1 1/4									11 3/4	3 1/4	1/4	4	11 3/4	3 1/4	1/4	4	135 1/4	32 1/2
Tower H–2½	3	1/8	1 1/4	1 1/4									13 1/8	3 1/2	1/4	4	13 1/8	3 1/2	1/4	4	138 3/4	32 1/2
Tower G–3½	3	1/8	1 1/2	1 1/2									15 5/8	3 3/4	1/4	4	15 5/8	3 3/4	3/4	4	152 1/8	37
Traffic C–4000	3	1/8	1	1/8	H	10 1/2	2	10 1/2	2	41 1/4	1 3/4	F	43 1/2	2 1/2	1/8	2	38	1 3/4	1/8	2	120 3/4	42
Traffic 6000	3	1/8	1	1/8	H	10 1/2	2	10 1/2	2	41 1/4	1 3/4	F	52	3	1/8	2	47	2	1/8	2	120 3/4	34
Traffic Speedboy	3	1/8	1	1/8	H	10 1/2	2	10 1/2	2	41 1/4	1 3/4	F	43 1/2	2 1/2	1/8	2	38	1 3/4	1/8	2	86	34
Transport 15–1	3	1/8	1		H	10 3/4	2	13	2	40 3/8	1 3/4	F	48	2 1/2	1/8	2	46 5/8	2	1/8	2	98 1/8	34
Transport 25–1½	3	1/8	1		V	12	2	12	2	36 1/2	1 3/4	F	48 1/2	2	1/8	2	46 1/2	1 1/2	1/8	2	100 7/8	34
Transport 35–2	3	1/8	1		V	10 3/4	2	13	2	40 3/8	1 3/4	F	11	3	1/8	2	46 1/2	2 1/2	1/8	2	116 7/8	34
Transport 60–3½	4	1/4	1 1/4	1 1/4	V	9 1/4	2	10	1 1/4	32 3/4	2	F	10 1/4	3 1/2	1/8	2	48 1/2	2 1/2	1/8	2	150	34
Transport 75–5	4	1/4	1 1/4	1 1/4	V	12	2	16	1 1/4	35 7/8	2	F	11 1/8	3	1/8	4	58	2 1/2	1/8	2	170	36 1/2
Transport 55–3	4	1/8	1 1/4	1 1/4	V	9	1 1/2	16	1 1/4	31 1/4	1 1/4	F	10 1/4	3 1/2	1/8	2	48 1/2	2 1/2	1/8	2	150	34
Traylor B–1½	4	1/4	1		V					38	1	F	50	2	1/4	2	50	2	1/4	2	117	34
Traylor C–2–2½	4	1/4	1 1/4		V					36	2	F	50	2	1/4	2	50	2	1/4	2	122	34
Traylor D–3–3½	4	1/4	1 1/4		V					36	2	F	56 1/2	2 1/4	1/4	2	56 1/2	2 1/4	1/4	2	142	34
Traylor F–5–6	4	1/4	1 1/4		V					37	2	F	59	2 1/2	...	2	59	2 1/2	...	2	165	35
Triangle AA–1	3	1/8	1	1	H	17	2	17	2	34	1	F	22	2 1/2	1/8	1	41	2	1/8	2	94	35
Triangle A–1½	3	1/4	1	1	V	14	1 1/4	14 1/2	1 1/4	39 1/4	1 1/2	F	7	4	1/8	2	49	2	1/8	2	126	34
Triangle B–2½	3	1/4	1 1/4	1 1/4	V	9	1 1/2	18	1 1/4	39 1/4	1 1/2	F	7	4	1/8	2	52	3	1/8	2	132	34
Triangle C–2	3	1/4	1	1	V	14	1 1/4	14 1/2	1 1/4	39 1/4	1 1/2	F	7	4	1/8	2	52	3	1/8	2	129	34
Triumph HB–2½	4	1/4	...	...	V	9	1 3/4	17	1 1/4	32 1/2	2	F	46	2 1/2	1/8	2	32	2 1/2	1/8	2	120	34 1/2
Triumph HC–2	4	1/4	...	...	V	9	1 3/4	17	1 1/4	32 1/2	2	F	46	2 1/2	1/8	2	32	2 1/2	1/8	2	120	34 1/2
Ultimate A–2	4	1/4	1 1/4	1 1/8	V	11	2	8	1 1/4	34	2	F	20	2 1/4	1/4	2	45	2	1/4	2	126	32 3/4
Ultimate AJ2	4	1/4	1 1/4	1 1/8	V	11	2	8	1 1/4	34	2	F	20	2 1/4	1/4	2	45	2	1/4	2	126	32 3/4
Ultimate AJL–2	4	1/4	1 1/4	1 1/8	V	11	2	8	1 1/4	34	2	F	20	2 1/4	1/4	2	45	2	1/4	2	150	32 3/4
Ultimate B–3	4	1/4	1 1/4	1 1/8	V	11	2	8	1 1/4	34	2	F	51	2 1/4	1/4	2	51	2 1/4	1/4	2	144	32 3/4
Ultimate BL3	4	1/4	1 1/4	1 1/8	V	11	2	8	1 1/4	34	2	F	51	2 1/4	1/4	2	51	2 1/4	1/4	2	192	32 3/4
Ultimate D–5	4	1/4	1 1/4	1 1/8	V	11	2	8	1 1/4	34	2	F	51	2 1/4	1/4	2	51	2 1/4	1/4	2	180	37 1/2
Union F–2½	3	1/4	1 1/4	1 1/4	V	20	1 3/4	19 1/2	1 1/2	37 3/4	2	F	55	3	1/8	1	50	2	1/8	1	133 1/2	32
Union FW–2½	3	1/4	1 1/4	1 1/4	V	20	1 3/4	19 1/2	1 1/2	37 3/4	2	F	26	4 1/2	1/4	1	52	3	1/4	1	133 1/2	32
Union H–4	3	1/4	1 1/4	1 1/4	V	20	1 3/4	19 1/2	1 1/2	37 3/4	2	F	56 3/4	3 1/2	1/8	1	32	4 1/2	1/8	1	157 1/2	34
Union HW–4	3	1/4	1 1/4	1 1/4	V	20	1 3/4	19 1/2	1 1/2	37 3/4	2	F	26	4 1/2	1/4	1	24	4	1/4	2	157 1/2	34
Union JW–6	3	1/4	1 1/2	2	V	20	1 3/4	19 1/2	1 1/2	41 1/2	2	F	34	4	1/4	1	28	5	1/4	2	190	36
United 1½	4	1/4	1	1 7/8	H	15	2 1/2	16	1 1/2	37 1/2	2	F	48	2	1/8	1	48	1 1/2	1/8	1	120	33
United 2½	4	1/4	1 1/4	1 11/16	H	7	2 1/2	12	1 1/2	37 1/2	2	F	49	3	1/8	1	49	2 1/2	1/8	1	Opt	33
United 3½	4	1/4	1 1/4	1 11/16	H	7	2 1/2	7	1 1/2	37 1/2	2	F	62	3	1/8	1	58	2 1/2	1/8	1	Opt	34
United 5	4	1/4	1 1/2	1 11/16	H	14 1/2	2 1/2	12	1 1/2	37 1/2	2	F	82 1/2	2 1/4	1/8	1	88 1/2	2 1/2	1/8	1	Opt	38
U.S.N.–1½	3	M	1	1/8	H	11 1/2	2	9	1 1/4	37	1 1/4	F	50 1/2	2 1/2	1/8	2	46 1/2	1 1/2	1/8	2	120	34
U.S.N.W.–1½	3	1/8	1	1/8	H	11 1/2	2	9	1 1/4	37	1 1/4	F	19 1/2	2	1/8	4	19 1/2	2	1/8	4	120	34
U.S.R.–2½–3	3	1/8	1 1/4	1/8	V	10	1 1/4	10	1 1/4	35	1 1/4	F	21	2 1/4	1/4	4	21	2 1/4	1/4	4	144	34
U.S.S.–3½–4	3	1/4	1 1/4	1/4	V	9	1 1/2	8	1 1/2	37	1 1/4	F	50	2 1/2	1/4	2	50	2 1/2	1/4	2	156	36
U.S.T.–5–6	4	1/4	1 1/2	1/4	V	15	2	13	1 1/2	38 3/4	2	F	62	3	1/4	4	33	4	1/4	1	168	36
U.S.U.–1¼	4	1/8	1	1/8	V	11 1/2	1 3/4	11 1/2	1 1/4	33	1 1/4	F	50 1/2	2 1/2	1/8	2	20	1 1/2	1/8	4	108	32
Velie 46–1½	3	M	1	1/8	V	9	2	12	1 1/4	41 3/4	3/4	V	54 1/8	2 1/2	1/8	2	52 1/2	2 1/4	1/8	4	120	31
Velie 53–2½	3	1/8	1 1/4	5/8	V	5 1/2	1 5/8	12 1/2	1 1/4	40 1/2	2	F	54 1/8	2 1/2	1/8	2	52 1/2	2 1/4	1/8	2	120	31
Vim 29½	3	1/8	5/8							30 3/4	1	F	14 1/8	1 1/2	1/8	4	14 1/8	1 1/2	1/8	4	64	30
Vim 30½	3	1/8	5/8							30 3/4	1	F	14 1/8	1 1/2	1/8	4	14 1/8	1 1/2	1/8	4	83 1/2	30
Vim 31–1	4	1/8	1							40	1	F	18	2	1/8	4	18	2	1/8	4	92	32
Vim 22–2	4	1/8	1							40	1	F	42 5/8	2	1/4	2	42 5/8	2	1/4	2	120 5/8	34
Vim 23–3	5	1/8	1 1/4							40	1	F	48 1/8	2 1/4	1/4	2	48 1/8	2 1/4	1/4	2	160 1/8	34
Walker M½													43	2 3/4	1/8	2	14	1 3/4	1/8	4	90	32
Walker P3½													53 1/4	3	1/8	2	19 1/4	2 1/2	1/8	4	140	35
Walker N5													53 1/4	3	1/8	2	19 1/4	2 1/2	1/8	4	162	35
Walker Model 22													45 1/2	2 1/2	1/8	2	16	2	1/8	4	99	32
Walker Model 42													53 1/4	3	1/8	2	19 1/4	2 1/2	1/8	4	120	32
Walker Johnson A–2	3	1/8	1	1	V	11 1/2	2	7 1/2	1 3/4	37	1	F	12	3 1/4	1/4	4	12	3 1/4	1/4	4	117	32
Walker Johnson B3	4	1/4	1 1/4	1 1/4	V	10	2	8	1 1/4	33 1/2	1 1/4	F	13	3 1/2	1/4	4	13	3 1/2	1/4	4	133	32 1/8
Walter S–5	3	1/4	1/2	2	V	10	1 1/2	18	1 1/2	39	1 1/2	F	15	5	1/4	4	57	2 1/2	1/4	2	150	36
Ward LaFrance 2B–2½–3½	3	1/4	1 1/4	1 1/2	V	7	1 1/2	16	1 1/2	41 1/2	1 1/2	F	13	3 1/2	1/4	4	13	3 1/2	1/4	4	137 1/2	33
Ward LaFrance 4A–3½–5	3	1/4	1 3/4	1 3/4	V	8 1/2	1 1/2	18	1 1/2	41 1/2	1 1/2	F	15 1/2	3 3/4	1/4	4	15 1/2	3 3/4	1/4	4	170 1/8	37
Ward LaFrance 5A–5–7	3	1/4	1 1/2	1 3/4	V	9 1/4	1 1/2	18	1 1/2	41 1/2	1 1/2	F	18	4	1/4	4	18	4	1/4	4	170 1/8	37
Watson Bl	3	1/4	1	1 1/8	V	16 1/2	1 1/4	4	1 1/4	40	1 1/2	F	17 1/4	1 3/4	1/8	4	17 1/4	1 3/4	1/8	4	90 1/8	30
Watson N–3½	3	1/8	1 1/4	1 1/2	V	16 1/2	1 1/4	3	1 1/4	34	1 1/4	F	62	2 1/2	1/4	2	47	2 1/2	1/4	2	147	37
Watson U–5	3	1/8	1 1/4	1 1/2	V	16 1/2	1 1/4	3	1 1/4	38 1/2	1 1/4	F	15 1/2	3 1/4	1/4	4	15 1/2	3 3/4	1/4	4	.....	36
Wichita K–1	3	1/4	1 1/2	1 3/8	V	18 1/2	1 1/4	12	1 1/4	52 3/4	1 1/2	F	19 1/2	2	1/8	4	19 1/2	2	1/8	4	127 1/2	30
Wichita M–2	3	1/4	1 1/2	1 3/8	V	18 1/2	1 1/4	12	1 1/4	52 3/4	1 1/2	F	49	2	1/8	2	49	2	1/8	2	126 1/2	30
Wichita RX–3	3	1/4	1 1/4	1 3/4	V	11	1 1/2	11	1 1/2	43 3/4	1 1/2	F	54	2 1/4	1/8	2	54	2 1/4	1/8	2	130	30
Wichita O–4	3	1/4	1 1/2	1 3/4	V	11	1 1/2	11	1 1/2	40	1 1/2	F	56 1/2	2 1/2	1/4	2	56 1/2	2 1/2	1/4	2	152 1/2	36
Wichita S–5	3	1/4	1 1/2	1 3/4	V	11	1 1/2	11	1 1/2	40	1 1/2	F	66	3	1/4	2	66	3	1/4	2	163 1/2	36
Wilcox AA–1	3	1/4	1										47 1/8	2 1/2	1/8	2	33 1/4	2 1/2	1/8	2	96	34
Wilcox B–1½	3	1/4	1 1/4										47 1/8	2 1/2	1/8	2	33 1/4	2 1/2	1/8	2	132	33
Wilcox C–2½	3	1/4	1 1/4										57 1/2	2 1/2	1/8	2	42 1/2	2 1/2	1/8	2	141	33
Wilcox E–3½	3	1/4	1 1/4										57 1/2	2 1/2	1/4	2	42 1/2	2 1/2	1/4	2	156	33
Wilcox F–5	3	1/4	1 1/2										69 1/8	3 1/2	1/4	2	52	3 1/2	1/4	2	148 1/2	36
Wilson 1½	4	1/8	...	1									39 1/2	1 3/4	1/4	2	39 1/2	1 3/4	1/4	2	120	33
Wilson 2½	4	1/8	...	1 1/4									13 1/4	3 1/2	1/8	4	13 1/4	3 1/2	1/8	4	126	33
Wilson 3½	4	1/8	...	1 1/2									16	3 3/4	1/8	4	16	3 3/4	1/8	4	147	38
Wilson 5	4	1/8	...	1 1/2									18	4	1/8	4	18	4	1/8	4	147	38 1/4
Winther 751–1	3	1/4	1		H	15 3/4	2	17	2	36 1/8	1	F	42	2	1/8	2	24	2	1/8	1	102	30
Winther 39–1½	3	1/4	1 1/4	....	V	10	1 3/4	4 1/2	1 1/2	33 1/4	1 1/4	F	50	2 1/4	1/4	2	22 1/2	2 1/4	1/4	1	120	30
Winther 430–1½	3	1/4	1 1/4	....	V	11 1/4	1 1/2	11 1/2	1 1/4	30 5/8	1 1/2	F	50	2 1/4	1/4	2	22 1/2	2 1/4	1/4	1	120	30
Winther 450 2½	3	1/4	1 1/4	....	V	11 1/2	1 1/2	6 1/2	1 1/2	37 1/2	1 1/4	F	52	3	1/4	2	22 1/2	2 1/4	1/4	2	120	30
Winther 50–2½	3	1/4	1 1/4	....	V	17 1/8	1 3/4	8	1 1/2	42 1/2	2	F	52	3	1/4	2	50	2 1/4	1/4	2	58	33
Winther 51–2½	3	1/4	1 1/4	....	V	17 1/8	1 3/4	8	1 1/2	42 1/2	2	F	52	3	1/4	2	50	2 1/4	1/4	2	144	33
Winther 70–3½	3	1/4	1 1/4	....	V	17 1/8	1 3/4	8	1 1/2	42 1/2	2	F	62	3	1/4	2	60	2 1/2	1/4	2	156	33
Winther 109–5	3	1/4	1 1/2	....	V	21 1/2	1 3/4	8	1 1/2	42 1/2	2	F	93	2 1/4	1/4	2	93	2 1/4	1/4	2	156	33
Winther 140–7	3	1/4	1 1/2	....	V	12	1 3/4	6	1 1/4	42 1/4	2	F	93	2 1/4	1/4	2	93	2 1/4	1/4	2	156	33
Wisconsin 2 (Loganville)	3	1/8	1 1/4	1 1/4	H	17	2	17	2	34	1/4	F	58	2 1/2	1/8	2	56 1/2	2 1/4	1/8	2	114	34
Wisconsin 2½ (Loganville)	3	1/8	1 1/4	1 1/4	V	12	1 1/2	10	1 1/4	40	3/4	V	58	2 1/2	1/8	2	56 1/2	2 1/4	1/8	2	120	34
Witt Will N–1½	3	1/8	1 1/4	1 1/4	V	8	1 1/2	12	1 1/4	31	1 1/4	F	48	3 1/4	1/4	4	48	3 1/4	1/4	4	Opt	32
Witt Will P–2	3	1/8	1 1/4	1 1/4	V	8	1 1/2	12	1 1/4	31	1 1/4	F	52	3 1/2	1/4	4	52	3 1/2	1/4	4	Opt	32
Wolverine J–1	4	1/8	1	1 1/4	V	9 1/2	1 1/2	11 1/2	1 1/2	42	1 1/2	F	42 1/2	2 1/2	1/8	2	38	1 3/4	1/8	2	110	34 1/2
Wolverine J–1½	4	1/8	1	1 1/4	V	9 1/2	1 1/2	11 1/2	1 1/2	42	1 1/2	F	51	3	1/8	2	42	2	1/8	2	120	34 1/2
Wolverine J–2	4	1/8	1	1 1/4	V	9 1/2	1 1/2	11 1/2	1 1/2	42	1 1/4	F	51	3	1/8	2	42	3	1/8	2	132	34 1/2
Wolverine K–3	4	1/4	1 1/4	1 1/4	V	9 1/2	1 1/2	11 1/2	1 1/2	42	1 1/2	F	55	3	1/8	2	47 1/2	2	1/8	2	153	34
Wolverine L 5	4	1/4	1 1/4	1 1/4	V	9 1/2	1 1/2	11 1/2	1 1/2	44	1 1/2	F	61 1/2	3	1/8	2	58	2 1/2	1/8	2	174	35 1/8
Yellow Cab M22—¾	3	1/8	1	1/8	V	7 1/2	2	9 5/8	2	38 1/2	5/8	V	49	2 1/2	1/4	2	45	2 1/2	1/4	2	60	43
Yellow Cab M42–1¼	3	1/8	1	1/8	V	7 1/2	2	9 5/8	2	38 1/2	5/8	V	11	3	1/4	4	11	3	1/4	4	92	32

KEY OF ABBREVIATIONS

Note: Numerals on This Page Correspond With Numerals at Head of Specification Columns on Page Following. In All Specifications—O, Own; Op or Opt, Optional

Engine:
Beav—Beaver
Bud—Buda
Cont—Continental
Dodge—Dodge Bros.
GBS—Golden, Belknap & Swartz
Gr-B—Gray-Beal
Her—Hercules
Hin—Hinkley
HSp—Herschell-Spillman
1 LeR—Le Roi
Lib—Liberty
LMF—Light Mfg. & Fdy.
Lyco—Lycoming
Mid—Midwest
Sup—Supreme
TC—Twin City
Wau—Waukesha
Wei—Weidely
Wis—Wisconsin

Valve Arrangement:
H—Overhead
2 L—ELL-Head
S—Sleeve
T—TEE-Head

How Cooled:
A—Air
3 B—Pump & Thermo
C—Centrifugal
G—Gear Pump
T—Thermo-Syphon

Radiator (Make):
BW—B & W
Brm—Brenem
Bus—Bush
Can—Candler
Chic—Chicago
Eag—Eagle
EM—English-Mersick
Eur—Eureka
Fed—Fedders
Flex—Flexo
GO—G. & O.
Har—Harrison
4 Hoo—Hooven
Idl—Ideal
Jam—Jamestown
Kue—Kuenz
Liv—Livingston
Lng—Long
McC—McCord
May—Mayo
Mod—Modine
Per—Prefex
R-T—Rome-Turney
Spar—Sparton
Spec—Special
Spli—Splitex
Stan—Standard

Radiator (Type):
C—Cellular
Fin—Fin Tube
5 H—Honeycomb
PT—Plain Tube
Whee—Wheeler
ZZT—Zig Zag Tube

Lubrication:
6 FS—Force and Splash
F—Force Feed
S—Splash

Carburetor:
B&B—Ball & Ball
Bent—Bennett
Cart—Carter
Eag—Eagle
Ens—Ensign
7 Flch—Fletcher
Holl—Holley
John—Johnson
King—Kingston
Mar—Marvel
Mas—Master
Mill—Miller
Rayf—Rayfield
Scoe—Scoe
Strm—Stromberg
Shk—Shakespeare
Sheb—Schebler
Stew—Stewart
Till—Tillotson
Zen—Zenith

Fuel Feed:
8 G—Gravity
P—Pressure
V—Vacuum

Governor:
Con—Continental
Del—Delaney
Dup—Duplex
Her—Hercules
Hin—Hinkley
9 McC—McCanna
Mer—Merrill
Mon—Monarch
Mue—Mueller
Phar—Pharo
Pier—Pierce
Sim—Simplex
Wau—Waukesha

Clutch (Make):
B B—Borg & Beck
B-Li—Brown-Lipe
Covt—Covert
Det—Detlaff
DG—Detroit Gear & Mach.
Dod—Dodge Bros.
Full—Fuller
GB&S—Golden, Belknap & Swartz
10 Hart—Hartford
Hoos—Hoosier
HS—Hele-Shaw
M-E—Merchant & Evans
Munc—Muncie
M-P—Muncie Products
T-D—Twin Disc
W-C—Warner Corporation
W-Gr—Warner Gear

Clutch (Type):
C—Cone
D—Disc
11 DP—Dry Plate
DD—Dry Disc
Fr—Friction
WP—Wet Plate
WD—Wet Disc

Ignition System:
Amr—American Swiss
Apo—Apollo
AtK—Atwater Kent
AuL—Auto-Lite
Bos—Bosch
Ber—Berling
Con—Connecticut
Del—Delco
Eis—Eisemann
12 Kin—Kingston
KW—K. W. Ignition Co.
Lor—Louraine
NE—North East
POL—Prest-O-Lite
Rm—Remy
Sim—Simms
Spl—Splitdorf
Tea—Teagle
Wag—Wagner
Wes—Westinghouse

Engine Starter:
AC—Allis-Chalmers
AK—Atwater Kent
AL—Auto-Lite
Bj—Bijur
Bos—Bosch
13 DL—Delco
Dy—Dyneto
GD—Gray & Davis
LN—Leece-Neville
NE—North East
RE—Remy
USL—U. S. L.
W—Westinghouse
Wg—Wagner

Gearset:
B-Li—Brown-Lipe
Cott—Cotta
Covt—Covert
D-Sea—Driggs-Seabury
Det—Detroit
Dod—Dodge Bros.
Dun—Dundore
14 Durst—Durston
Full—Fuller
G-Le—Grant Lees
MM—Mechanics Mach. Co.
Munc—Muncie
M-P—Muncie Products
Rock—Rockford
W-C—Warner Corporation
W-Gr—Warner Gear

Location of Gearset:
A—Amidships
15 J—Unit with jackshaft
R—Rear
U—Unit with engine

Universal:
A-B—Easton Mch. Co.
Acm—Acme
Arv—Arvac
Bear—Bearings Co.
Bld—Blood-Brothers
Cli—Climax
Det—Detroit
Dit—Ditwiler
Flex—Flexite
Hart—Hartford
16 KB—Kinsler-Bennett
Mech—Mechanics
M-E—Merchant & Evans
Nor—Norwalk
Pet—Peters
Sned—Snead
Spic—Spicer
Ster—Sterling
Ther—Thermoid
UM—Universal Machine
UP—Universal Products
Var—Varied

Springs:
All—Alloy Steel
Am—Am. Auto Parts
Arm—Armstrong
Bea—Beans
Cham—Champion
Coop—Cooper
Del—Delany
Det—Detroit
GC—Garden City
Har—Harvey
Hig—Higgins
IC—Iron City
Jax—Jaxon
Kal—Kalamazoo
17 Lah—Laher
Lig—Liggett
Mar—Maremont
Math—Mather
Mer—Merrill
Nat—National
Pen—Penn
Per—Perfection
Row—Rowland
Shel—Sheldon
SP—Spring Perch
Stan—Stan-Par
Ster—Sterling
Tem—Temme
Tut—Tuthill
US—United States
Wis—Wisconsin

Final Drive:
B—Bevel Gear
C—Chain
18 I—Internal Gear
N—Concentric Spur
P—Spur
R—Double Reduction
S—Spiral Bevel
W—Worm

Rear Axle (Make):
Amr—American
Badg—Badger
Col—Columbia
Clark
Dun—Dunkirk
Eat—Eaton
Fli—Flint
Hind—Hindley
IrM—Iron Mt.
Keno—Kenosha
LM—L M Axle
19 Rock—Rockford
Russ—Russel
Sals—Salisbury
Sav—Savage
Shel—Sheldon
Stn—Stanweld
StP—Standard Parts
Thom—Thomson
Tim—Timken
Torb—Torbensen
W-M—Weston-Mott
US—United States
Vul—Vulcan
Walk—Walker
Wis—Wisconsin

Rear Axle (Type):
Flot—Floating
20 D—Dead
½-Fl—Semi-Floating
¾-Fl—¾-Floating

Steering Gear:
CAS—C. A. S. Products Co.
Dit—Ditwiler
Dod—Dodge Bros.
Gem—Gemmer
Jac—Jacox
21 KH—Keystone Hendley
Lav—Lavine
M-P—Muncie Products
Ros—Ross
Sag—Saginaw Products Co.
W-C—Warner Corporation
Woh—Wohlrab

Wheels:
Arc—Archibald
AuW—Auto Wheel
Bim—Bimel
Cla—Clark
C&M—Crane & McMahon
Day—Dayton
Det—Detroit
E&O—Eberly & Oris
Hay—Hayes
Hoo—Hoopes Brothers
Jon—Jones
Kel—Kelsey
MM—Michigan Malleable Iron Co.
22 Mot—Motor Wheel
Mut—Mutual
Nor—Northern
Pru—Prudden
Roy—Royer
Rus—Russell
Sal—Salisbury
Sch—Schwartz
Smi—Smith
Sta—Stanwell
StM—St. Mary
Stn—Standard
Wal—Walker
Wan—Wayne
W-L—Waterhouse & Lester
Wes—Western Wheel Co.

Rim Equipment:
Bak—Baker
Det—Detroit
Fir—Firestone
23 Gdy—Goodyear
Hay—Hayes
Jax—Jaxon
Kel—Kelsey
Ken—Kennedy

Commercial Car Specifications—Corrected Monthly

The Specifications, Chassis Prices, Etc., Are Corrected Each Month From Data Supplied Direct by the Makers. Gasoline Tractor-Trucks Will be Found at the End of Gasoline Commercial Cars

See Also Replacement Table in "Service and Repair Departments." Truck Frame Dimensions Are Included in Replacement Table

(Where prices are not given it is because we have been unable to get them from authoritative sources)

* An asterisk in front of the model name indicates that corrections have been made somewhere in the specifications since the previous month

Trade Name and Model	Chassis Price	ENGINE DETAILS: Make and Model Number 4 Cylinder unless otherwise noted	Bore and Stroke	N.A.C.C. Horsepower	Valve Arrange't	How Cooled	Radiator (Make)	Radiator (Type)	Lubrication	Carburetor	Fuel Feed	Governor (Make)	Clutch (Make)	Clutch (Type)	Ignition System	Engine Starter	GEARSET: Make	Location	Speeds	Universal (Make)	Springs (Make)	REAR AXLE: Final Drive	Make	Type	Total Gear Reduction in High	Total Gear Reduction in Low	Steering Gear (Make)	TIRES, WHEELS, RIMS: *Pneumatic †Dual Front	*Pneumatic †Dual Rear	Wheels (Make)	Rim Equipment	Chassis Weight (Stripped)	Wheelbase
1000 Pounds		1		2	3	4	5	6	7	8	9	10	11	12	13	14	15		16	17	18	19	20			21			22	23		
Dort	685	Lyc K	3½x5	19.6	L	T	Fed	C	S	Cart	V	.....	Own	C	Con	Bos	Own	U	3	MM	Lig	S	Fli	¾ Fl	4.45	15.13	Sag	31x4*	31x4*	Imp	Cle	2015	105
Vim 29	1050	Own	3⅛x4½	15.6	L	T	MoC	Fin	FS	Zen	G	.....	B.B.	DD	Wes	W	Own	U	3	Spic	Shel	W	Own	.....	5 5	.....	CAS	31x4*	31x4*	Hoo	Fir	2175	108
Vim 30	1175	Own	3⅛x4½	15.6	L	T	MoC	Fin	FS	Zen	G	.....	B.B.	DD	Wes	W	Own	U	3	Spic	Shel	W	Own	.....	5 5	.....	CAS	32x4½*	32x4½*	Hoo	Fir	2290	127
1500 Pounds																																		
Brockway E2	.....	Wis SU	4 x5	25 6	H	C	GO	C	FS	Strm	V	.....	B-Li	DD	Rm	LN	B-Li	U	3	M-E	Row	S	Col	Flot	5 13	20.5	Gem	33x5*	33x5*	.....	Fir	3450	135
Chevrolet G	650	Own	3 11/16x4	21.7	H	B	Har	H	FS	Zen	G	.....	Own	C	Rm	AL	Own	...	3	Own	Arm	S	Own	½ Fl	5.42	18.9	M-P	31x4*	34x4½*	Hay	Jax	2167	120
Clydesdale 10	1485	Cont N	3¾x5	22.5	L	T	.....	PT	FS	Zen	V	.....	B.B.	DP	Bos	Bos	B-Li	U	3	Spic	Stan	B	Timk	½ Fl	5	16.4	Jac	34x5	34x5	.....	Fir	3100	138
Commerce 9	1150	Cont N	3¾x5	22.5	L	I	Lng	Fin	S	Zen	V	.....	.....	DG	Fis	Bj	Det	U	3	Spic	Am	B	Sals	¾ Fl	5.73	18.33	Jac	32x4½	32x4½	.....	.....	.....	127
Corbitt S Speed Truck	1260	H-Sp 7000	3½x5	19.8	L	T	MoC	C	FS	Strm	V	.....	B-Li	DD	Eis	Dyn	B-Li	U	3	Hart	Shel	W	Shel	½ Fl	6	20	Ros	34x4½*	34x4½*	Bim	Fir	3350	130
Dodge Brothers	730	Own	3⅞x4½	24	L	C	MoC	PT	FS	Stew	V	.....	Own	DD	NE	NE	Own	U	3	Own	Own	S	Own	½ Fl	4.16	19.4	Own	32x4*	32x4*	Kel	Kel	1992	114
Federal R-2	1375	Cont J-4	3¾x5	22.5	L	C	Own	Fin	F	Zen	V	.....	B.B.	DP	Eis	RE	Det	U	3	Pet	Det	W	Timk	½ Fl	5.6	17.4	Gem	33x5	33x5	Det	Det	2950	132
H. R. L.-L	2200	H-Sp 7000	3½x5	19.6	L	T	Fed	Fin	F	Zen	V	.....	Own	DP	Bos	GD	Covt	U	3	Spic	Shel	W	Wis	½ Fl	6.2	22.	Ross	34x4½*	35x5*	Sch	Gdy	3300	134
Internat'l Speed Truck S.	1250	Lyco-Int'l	3½x5	19 6	L	T	Lng	Fin	FS	Ens	G	..	Mun	DP	Con	AL	Mun	U	3	Sned	Stan	f	Torb	D	6.3	.....	CAS	.....	.....	Opt	.....	2600	124
Ogden A2	.....	Cont N	3½x5	19.6	L	T	Chic	Fin	FS	Strm	V	.....	B-Li	DD	Spl	....	B-Li	U	3	M-E	Tut	W	Timk	½ Fl	6.2	.....	Ros	34x5	34x5	Stn	.....	3100	125
Rainier R21	1970	Cont-N	3½x5	19.6	L	T	Har	H	FS	Zen	V	Mon	B-Li	DP	Eis	....	B-Li	U	3	Hart	Per	W	Timk	½ Fl	7.2	23.9	Lav	35x5*	35x5*	....	Fir	2350	125
Republic Rapid Transit	1250	Lyco KB	3½x5	19.6	L	T	Own	C	FS	Strm	V	...	Full	DD	Aul	AL	Full	U	3	Spic	Matl	I	Torb	D	5.38	15.06	Jac	32x4½*	32x4½*	Mot	Fir	2650	124
*Samson 15	595	Own	3 11/16x4	21.8	H	C	Own	PT	FS	Zen	G	Mon	Own	D	Rm	AL	Own	A	3	Own	Own	S	Own	½ Fl	6.33	21.02	Own	32x4*	32x4*	Own	Opt	2366	118
Service 12	.....	Mid 409	3¼x4½	16.9	H	I	Lng	Fin	F	Strm	G	.....	Hoos	DP	Rm	Rm	Det	U	3	M-E	Shel	B	Timk	½ Fl	6 88	22.1	Ros	32x4½*	32x4½*	Bim	Fir	2720	128
*Stoughton C	1095	Mid 410	3⅜x4½	18.2	H	T	.....	...	F	Zen	V	.....	Det	DD	Rm	RE	Own	U	3	Ther	Own	B	Col	Flot	5.87	23.5	Lav	34x4½	34x4½	Roy	Gdy	2480	131
*Watson B	1465	Buda MU	3⅝x5⅛	21	L	P	GO	C	FS	Zen	G	Wau	B-Li	DP	Sim	D	B-Li	U	3	M-E	Shel	W	Emp	½ Fl	6.2	20.7	Lav	35x5	35x5	Hoo	Fir	2900	128
White 15	2400	Own	3¾x5½	22.5	L	C	....	C	FS	Own	G	.....	Own	D	...	.....	Own	A	4	Own		B	Own	½ Fl	....	....	Own	34x5*	34x5*	.....	Fir	3200	133
Yellow Cab M-22-¾	1590	Cont V-4	3¾x5	22.5	L	T	Lng	Fin	FS	Zen	G	.....	B-Li	DD	Bos	.....	B-Li	U	3	Spic	Matl	B	Timk	...	4.9	16.31	Gem	33x4½*	33x4½*	Stn	Fir	2400	117
1 Ton																																		
*Acme 20	.....	Cont N	3¾x5	22.5	L	T	GO	C	FS	Rayf	V	Dup	B.B.	DP	Eis	Bos	Cott	U	3	Bld	Det	W	Timk	½ Fl	6.75	27	Ros	35x5*	35x5*	Bim	.....	3050	129
Apex GW	1750	Buda MU	3⅝x5⅛	21	L	T	GO	C	S	Strm	V	.....	Full	D	Aul	AL	Eull	U	3	Bld	Det	W	Timk	.	6.25	.	Lav	35x5*	35x5*	Roy	Fir	2650	130
*Atlas 22	1495	Buda WTU	3¾x5⅛	22.5	L	C	Own	H	F	Zen	G	.....	M&E	DD	AtK	Bj	Own	U	3	Ster	IC	W	Own	½ Fl	5.16	14.46	CAS	34x4½	34x4½	Sch	Fir	2850	130
Avery	.....	Own 6	3 x4	21.6	L	T	Own	C	S	Strm	V	Own	Own	DP	KW	W	Own	U	3	Pet	Math	I	Torb	D	8	26.66	Ros	34x5*	34x5*	StM	Gdy	2800	129
*Bell M	1495	Buda	3⅝x5⅛	21	L	C	Chic	PT	F	Zen	V	.....	B.B.	DP	Eis	.....	Mun	U	3	Spic	Det	W	Timk	.	7.2	.	Lav	35x5	35x5	Bim	Fir	2500	126
*Belmont B	1525	Buda MU	3⅝x5⅛	21	L	C	R-T	Fin	S	Zen	G	.....	GB&S	....	Con	Dy	....	U	3	Ster	Math	B	Fli	¾ Fl	5.2	15.75	Lav	31x4	31x4	Smi	Fir	2000	113
Bessemer G	.....	Cont N	3½x5	19.6	L	T	Std	C	FS	Strm	G	.....	Full	DD	Bos	Bj	Full	U	3	Arv	Per	I	Torb	D	....	....	Ros	35x5	35x5	Sch	Fir	3000	124
Bethlehem GN	1195	Own	3½x5	19.6	L	T	GO	H	F	Zen	G	.....	.....	DD	Bos	GD	Det	U	3	Spic	Math	B	StP	½ Fl	6.	18.8	Ros	35x5	35x5	.....	Fir	2800	125
Birch 1	1285	Gr-B	3½x5	19.6	L	T	Chic	PT	FS	Strm	G	.....	Full	DD	Con	....	Full	U	3	UM	...	I	Clark	D	....	....	Lav	32x3½*	32x4*	.....	.....	3200	132
Casco Model A	1785	Buda MU	3⅝x5⅛	21.2	L	T	GO	C	F	Zen	V	.....	Full	DD	Bos	Bos	Full	U	3	Spi	Stan	S	Col	½ Fl	5.85	23.46	Woh	34x5	34x5	Arc	Fir	3100	130
Chevrolet T	1095	Own	3 11/16x5¼	21.7	H	C	Har	H	FS	Zen	G	Mon	Own	C	Rm	AL	Own	...	3	Arv	Arm	W	Own	½ Fl	7	24.67	M-P	33x4*	35x5*	Hay	Jax	2840	125
Clydesdale 10A	1585	Cont N	3¾x5	22.5	L	T	.....	PT	FS	Zen	V	.....	B.B.	DP	Bos	Bos	B-Li	U	3	Spic	Stan	W	Timk	½ Fl	6.75	22	Jac	34x5	34x5	.....	Fir	3100	138
Collier 18	.....	Cont N	3½x5	19.6	T	P	Lng	PT	S	Zen	V	Mon	Full	DP	Eis	.....	Full	U	3	UP	Matl	W	Timk	½ Fl	7.75	31	Ros	34x4	34x5	Bim	Fir	3210	140
Corbitt E-22	1480	Cont N¾	3¾x5	22.5	L	T	MoC	Fin	FS	Strm	V	.....	B-Li	DD	Eis	.....	B-Li	U	3	Hart	Shel	W	Shel	½ Fl	6	20	Ros	34x3½	34x4	Bim	Fir	3730	130
Day Elder AS	1600	Cont N	3¾x5	22.5	L	T	Bus	Fin	FS	Zen	G	.....	Covt	DD	Eis	.....	Covt	U	3	Hart	IC	W	Shel	½ Fl	6	21.96	Gem	35x5*	35x5*	Jon	Fir	3000	128
Dearborn E (Speed)	1600	Buda MU	3⅝x5½	21	L	C	Chic	PT	F	Strm	V	.....	Full	DP	Con	Bos	Full	U	3	Hart	.....	W	Wis	½ Fl	6.2	18.6	Ros	35x5*	35x5*	....	Fir	3280	132
*Defiance G	1525	GBS	3¾x5	22.5	L	P	Per	C	FS	Strm	V	.....	B.B.	DP	Eis	AL	G-Le	U	3	Arv	Det	B	Eat	....	6 14	.....	Own	35x5*	35x5*	StM	Fir	2700	128
Denby 31	1485	Cont	3½x5	19.6	L	T	Lng	PT	FS	Strm	G	.....	Full	DD	Eis	RE	Full	U	3	UP	Det	B	Col	½ Fl	5.85	23.46	Ros	35x5*	35x5*	Mot	Fir	2840	130
Diehl A	.....	Cont N	3½x5	19.6	L	T	.....	H	FS	Zen	G	.....	B.B.	.....	Sim	....	Durs	I	3	KB	Mar	I	Torb	D	5.3	.....	Ros	34x4½*	35x5*	Sch	Fir	2400	115
Dorris K-2	2490	Own	4 x5½	25.6	L	P	.....	...	F	Strm	V	.....	Own	DD	Bos	Bos	WC	U	3	Spic	...	B	Timk	½ Fl	4.23	.....	Ros	33x5	33x5	.....	.....	2000	Op
Eugol	1795	Buda MU	3⅝x5⅛	21	L	C	Chic	PT	F	Strm	V	.....	UC	DD	Wes	W	WC	U	3	Pet	Math	W	Timk	½ Fl	6.25	30.3	Ros	34x5*	34x5*	Bim	Fir	3500	135
Federal SD	1800	Cont J-4	3¾x5	22.5	L	C	Own	Fin	F	Zen	V	Phar	B.B.	DP	Eis	.....	Det	A	3	Spic	Matl	W	Timk	½ Fl	7.2	20.65	Gem	35x5*	36x6*	Det	Det	3600	132
Ford T	285	Own	3¾x4	22.5	L	C	Own	Fin	S	.....	G	....	Own	.....	Own	.....	Own	U	2	Own	Own	W	Own	½ Fl	Opt	19.9	Own	30x3½*	32x4½	.....	.....	1430	124
Forschler A	.....	Cont N	3½x5	19.6	L	C	EM	...	FS	Zen	V	Dup	Full	.....	Bos	Op	Full	I	3	Hart	Own	W	Shel	.....	.....	.....	Ros	34x3	34x4	.....	.....	3450	120
Fulton A	1495	H-Sp-7000	3½x5	19.6	L	C	Liv	H	FS	Cart	G	.....	DP	B.B.	Ber	W	Durs	U	3	Spic	Row	B	Col	.....	6.8	.....	Lav	35x5	35x5	Hoo	Fir	2800	130
Garford 15	1590	Buda MU	3⅝x5½	21	L	T	Lng	PT	F	Strm	G	.....	.....	DD	AtK	AK	Own	U	3	Spic	Per	W	Timk	½ Fl	6.25	.....	Gem	34x5*	34x5	.....	.....	3500	132
*Gary F	1775	Buda WU	3¾x5	22.5	L	C	Chic	Fin	S	Mas	G	Pier	Full	DD	Eis	.....	Full	U	3	Hart	Tut	W	Timk	½ Fl	.....	.....	Ros	36x3½	36x5	Pru	.....	3200	130
G. M.C. K-16	1295	Own	3½x5½	19.6	L	T	Own	Fin	F	Mar	G	Own	Own	DD	Eis	Own	Own	U	3	UM	Det	B	Own	¾ Fl	6	21.9	Own	34x5*	34x5*	Kel	.....	3300	132
*Graham Brothers	1265	Dodge	3⅞x4½	24	L	C	McC	PT	FS	Stew	V	.....	Dod	DD	NE	NE	Dod	U	3	Var	Det	S	Own	½ Fl	6.28	29.29	Dod	33x4½*	34x5*	.....	.....	2515	140
*Gramm-Pioneer 10 Speed T	1245	Lyco	3½x5	19.6	L	T	Per	Fin	S	Strm	G	.....	B.B.	DP	Con	AL	.....	U	3	Own	Per	B	Sals	¾ Fl	5.75	21	Ros	33x5*	33x5*	.....	Fir	2370	129
Hawkeye	1375	Buda MU	3⅝x5⅛	21	L	C	.....	C	F	Zen	V	.....	Full	DD	Eis	.....	Full	U	3	.....	.....	I	Clark	D	6.25	18	Ros	34x5	34x5	.....	.....	2000	136
Higrade A18	2100	Cont N	3½x5	19.6	L	C	Per	PT	FS	Zen	V	Dup	Full	DD	Sim	AL	Full	U	3	Bld	Per	W	Shel	.....	7.7	22.75	Lav	35x5	36x5	Det	Fir	2700	115
Independent B (Iowa)	1665	Cont N	3½x5	19.6	L	C	GC	PT	FS	Strm	V	.....	Full	DD	Bos	.....	Full	U	3	Bld	GC	.....	Russ	D	.....	.....	Lav	34x3	34x4	StM	Fir	3480	135

Indiana Highway Express		Wau BUX	3¾x5¼	22.5	L	C	Fed	H	F	Zen	G		BB	DP	Bos	Bos	B-Li	U	3	Pet	Shel	W	Tim	½Fl	6.11	24.9	Ros	34x5	34x5			3200	132					
International 21	1550	Own	3½x5¾	19.6	L	C	Own	Fin	FS	Zen	V	Own	Own	DP	Bos	Own	W-Gr	A	3	Own		I	Own	D	7	25.	Own			Own		3030	115					
Kearns	1150	H-Sp. 7000	3½x5	19.6	L	C	Own	H	FS	Zen	V	Pier	B.B.	DD	Ber	Dy	G-Le	U	3	M-E	Math	I	Torb	Flot	5.3	24.	Lav	32x4½*	32x4½*		Fir	2000	118					
Kissel Express	1585	Own 80000	3 7/16x5½	24.1	L	C	McC	PT	S	Strm	V	.....	W-Gr	DP	Rm	.....	W-Gr	U	3	Spic	Math	W	Timk	Flot	5.17	18.9	Jac	34x5*	34x5*	StM	.....	4780	140					
Kleiber AA	.....	Cont J-4	4½x5¾	27.2	L	C	Per	C	FS	Strm	G	Sim	.....	DD	Bos	.....	B-Li	U	3	Spic	Shel	W	Timk	½Fl	7.1	31.	Ros	34x3½	34x5	W-L	.....	4200	130					
Larrabee-Deyo X-2	1725	Con 7R	3¾x4½	24.3	L	C	Fed	H	F	Zen	G	.....	B-Li	DD	Bos	Bos	B-Li	U	3	Sned	Shel	B	Sals	¾Fl	5.75	23	GO	34x5	34x5	.....	Fir	4200	130					
Luedinghaus C	1695	H-Sp 7000	3½x5	19.6	L	C	Own	PT	FS	Sheb	G	.....	B.B.	D	Wei	W	G-Le	U	3	Spic	Tut	W	Wis	½Fl	6.2	18.32	Lav	35x5*	35x5*	StM	.....	2850	130					
Menominee Hurryton	1650	Wis SU	4 x5	25.6	H	C	Own	C	F	Strm	G	.....	Full	DP	Eis	Bos	Full	U	3	Spic	Per	S	Timk	½Fl	4.58	18.3	Ros	34x5	34x5	Stn	Fir	3500	132					
*Moreland R-R	1595	Her O	4 x5	25.6	L	C	Own	C	F	Zen	G	Her	B-Li	DD	AuL	AuL	B-Li	U	3	Ther	US	B	Timk	½Fl	5.5	22	Ros	34x5	34x5	Wd	Fir	3335	132					
Napoleon 9	1535	Gr-B	3½x5	19.6	H	T	Own	PT	F	Sheb	G	.....	Full	DD	Con	AL	Full	U	3	Bld	Math	I	Clark	D	6.1	18.1	Lav	35x5*	35x5*	Roy	Fir	3200	133					
Nash 2018	1595	Own-4	3¾x5¼	22.5	L	T	....	PT	F	Strm	G	Sim	B.B.	DP	Eis	AL	.....	U	3	Own	Har	I	Clark	D	6.8	21.85	Lav	34x3	34x4	AuW	.....	3400	130					
Norwalk	1595	Lyco K	3½x5	19.6	L	T	Stan	C	FS	Zen	V	.....	B.B.	D	Del	Dy	G-Le	...	3	UM	Stan	I	Stan	¾ Fl	7.75	.....	CAS	34x3½	34x4	E&O	Fir	2940	130					
*Oldsmobile	1095	Own	3 11/16x5¼	21.7	H	T	Har	C	FS	Zen	V	.....	B.B.	D	Rm	AL	W-Gr	U	3	Spic	Per	I	Torb	D	6.5	22.8	Jac	35x5*	35x5*	AuW	Jax	2580	128					
Parker C22	1875	Wau BUX	3¾x5¼	22.5	L	P	C	Own	PT	S	Strm	V	Wau	B-Li	DD	Eis	W	B-Li	U	3	Bld	Tut	W	Timk	½Fl	6.2	25.4	Lav	34x5	34.5	Bim	.....	3400	130					
Patriot Revere	1295	Cont N	3¾x5	22.5	L	T	Own	C	FS	Strm	V	.....	B.B.	DD	AtK	Bj	Cont	A	3	Ther	Mar	W	Dun	½Fl	6.2	22.69	CAS	35x5	35x5	Bim	Gdy	2800	129					
Penn	1350	Buda MU	3 5/8x5½	21	L	T	GO	PT	FS	Zen	V	.....	Full	DP	Bos	Bos	Full	U	3	M-E	Math	B	Sals	¾ Fl	5.71	.....	Ros	34x5	34x5	Smi	Fir	.....	130					
Pioneer AA, (Chicago)	1250	GBS	3¾x4¼	22.5	L	T	Own	H	FS	Zen	V	.....	.....	DG	D	Bos	AL	G-Le	U	3	Ther	GC	W	frM	¾ Fl	6.1	25.1	Wol	32x4½*	32x4½*	Bim	Fir	2500	132					
Rainier R-29	2150	Cont N	3¾x5	19.6	L	T	Har	H	FS	Zen	V	Mon	B-Li	DP	Eis	.....	B-Li	U	3	Hart	Per	W	Timk	.....	7.2	.....	Lav	35x5*	35x5*	.....	Fir	2950	133					
Republic 10	1395	Cont N 3¾	3¾x5	22.5	L	T	Own	C	FS	Strm	G	.....	Full	DD	Bos	.....	Full	U	3	Spic	Math	I	Torb	D	6.28	18.21	Jac	34x3	34x4	Nor	Fir	2956	124					
Republic 10-E	1695	Cont N-3¾	3¾x5	22.5	L	T	Own	C	FS	Strm	V	.....	Full	DD	Bos	.....	Full	U	3	Spic	Math	I	Torb	D	6.28	25.12	Jac	34x5*	34x5*	Nor	Fir	3225	124					
Ruggles 20	1195	Cont N	3¾x5	22.5	L	T	Per	C	FS	Strm	V	.....	B-Li	DD	Rm	Rm	B-Li	U	3	Spic	Det	B	Col	¾ Fl	5.12	20.48	Jac	34x5*	34x5*	Nor	Fir	2800	124					
Sanford W-15	.....	Cont N	3¾x5	22.5	L	T	R-T	Cel	S	Zen	V	.....	B-Li	DP	...	Dy	B-Li	U	3	Spic	Shel	W	Shel	½Fl	6.5	26.67	Ros	36x6	36x6	.....	Fir	3800	137					
Schwartz A	1685	Lyc KB	3½x5	19.6	L	C	G&O	H	S	Car	V	.....	Full	DP	Wes	Wes	Full	U	3	M-E	Row	B	Eat	½Fl	6.14	24.6	Ros	34x4½*	34x4½*	Sch	Fir	2850	130					
Signal NF	1450	Cont J4	3¾x5	22.5	L	C	McC	Fin	FS	Strm	G	Pier	B-Li	DP	Eis	.....	B-Li	A	3	UM	Det	W	Timk	½Fl	7.2	.....	Ros	34x5*	36x6*	StM	.....	3580	132					
Southern 10	2090	Buda WU	3¾x5 1/8	22.5	L	C	R-T	PT	S	Zen	V	Pier	Full	DD	Bos	.....	Full	U	3	.....	Shel	W	Shel	.....	.....	.....	Ros	35x5	35x5	.....	.....	.....	130					
Stoughton A	1790	Wau Bux	3¾x5¼	22.5	L	T	Own	Fin	FS	Strm	G	Wau	B-Li	DD	Eis	.....	B-Li	U	3	Ther	Own	W	Shel	½Fl	6	24	Lav	34x5*	34x5*	Roy	Gdy	3300	130					
Superior D	1650	Cont N-¾	3¾x5	22.5	L	T	Idl	C	FS	Strm	V	Pier	Full	DD	Eis	.....	Full	U	3	Arv	Tut	I	Torb	D	7.1	20.7	CAS	35x5*	35x5*	Sch	Fir	2950	124					
Transport 15	1295	Cont N	3¾x5	22.5	L	T	.....	.....	FS	Strm	V	.....	Full	DP	Rm	.....	Full	...	3	Sned	Det	B	.....	F	5.1	20.4	Lav	32x4½	32x4½	.....	Fir	2950	128					
Triangle AA	1285	H-Sp	3¼x5	16.9	L	T	Per	ZZT	FS	Strm	G	.....	Full	DD	Bos	Bos	Full	U	3	Spic	Det	B	Col	½Fl	5.8	19.9	Lav	32x4½	32x4½	.....	Fir	2600	123					
*United Highway Special	895	H-Sp	3½x5	19.6	L	T	Own	C	FS	Zen	V	.....	Full	DD	Bos	Bos	Full	U	3	Spic	Det	B	Col	½Fl	5.8	19.9	Lav	32x4½	32x4½	.....	Fir	2500	128					
Ursus T 30	2050	Buda MU	3 5/8x5 1/8	21.	L	T	....	PT	FS	Strm	V	.....	B-Li	DP	Wes	W	B-Li	...	3	Ther	.....	W	Timk	Flot	.....	.....	Ros	34x5*	34x5*	Roy	Fir	.....	132					
Vim 31	1975	Her-CU-2	3¾x5 1/8	22.5	L	P	McC	Fin	F	Zen	G	Her	B-Li	D	Spl	W	B-Li	U	3	Spic	Shel	W	Shel	.....	6.5	.....	Gem	35x5*	35x5*	Hoo	Fir	3790	125					
Wichita K	1875	Wau-BX	3¾x5¼	22.5	L	T	.....	PT	F	Strm	G	Wau	Own	C	Wag	.....	B-Li	A	4	Own	Det	W	Shel	½Fl	7.8	40.56	Ros	36x3	36x4	Bim	.....	3650	144					
Wilcox AA	.....	Buda	3¾x5½	22.5	L	T	.....	PT	S	Strm	V	Dup	B-Li	DD	Bos	.....	B-Li	U	3	Spic	Shel	W	Shel	½Fl	7.7	25.8	Gem	35x5*	35x5	.....	.....	3600	130					
Winther Delivery Special	.....	H-Sp 7000	3½x5	19.6	L	T	Brm	PT	F	Strm	V	.....	W-Gr	DD	Bos	W	W-Gr	U	3	Pet	Det	I	Torb	D	6.6	21.4	Lav	34x4½*	35x5*	Mut	Fir	2700	135					
Wisconsin A (Sauk City)	1750	Cont	3¾x5	22.5	L	C	Chic	PT	F	Strm	V	Phar	B-Li	DD	Bos	Bos	B-Li	U	3	Spic	Det	W	Timk	½Fl	6¾	.....	Lav	34x5*	34x5*	Bim	Gdy	3400	132					
Wolverine J-1	1810	Cont J-4	3¾x5	22.5	L	G	Lng	Fin	F	Strm	G	Phar	Full	DD	Spl	AL	Full	U	3	UP	Am	I	Russ	D	8.2	32.8	Gem	34x3½	34x4	Hay	Gdy	3300	140					
1¼ Ton																																					
Clydesdale 18	1890	Cont N	3¾x5	22.5	L	T	Own	PT	FS	Zen	V	Own	B-Li	DD	Eis	Bj	B-Li	U	3	Spic	Stan	W	Timk	½Fl	6.75	22.5	Ros	34x5*	34x5*	.....	Fir	3200	136					
Commerce T	1450	Cont N	3¾x5	22.5	L	T	Lng	Fin	S	Zen	V	.....	DG	C	Eis	Bj	Det	U	3	Spic	Det	B	Sals	¾ Fl	5.71	18.2	Jac	34x4½	34x4½	Bim	Fir	2900	127					
Dependable A	1750	Buda MU	3 5/8x5½	21.	L	C	Lng	Fin	F	Zen	V	Mon	B.B.	DD	Spl	AL	Det	U	3	Acm	Per	W	Timk	½Fl	6.25	20.55	Ro	35x5*	36x6*	Bim	Fir	4000	134					
Diamond T-O-3	1975	Hin	3¾x5¼	22.5	L	C	GO	Fin	F	Strm	V	.....	Covt	DD	Bos	.....	Covt	U	3	Spic	Math	W	Own	½Fl	6.20	26.06	Gem	36x3½	36x4	.....	.....	3800	132					
Eagle 101	1875	Buda MU	3 5/8x5 1/8	22	L	C	Own	C	F	Zen	G	Opt	Covt	DD	Eis	Bos	Covt	U	3	M-E	Cham	I	Torb	D	6.6	24	Ros	34x5	34x5	Stn	Fir	.....	130					
Menominee HT	2000	Wis CAU	3¾x5	22.5	L	C	Own	Fin	FS	Strm	G	Mon	Det	DP	Eis	Opt	Cott	U	3	Spic	Tut	W	Wis	½Fl	7.75	28.52	Ros	34x3½	36x5	Stn	Fir	3525	130					
Noble A-21	1840	Buda MU	3 5/8x5½	21	L	C	Lng	Fin	F	Strm	V	.....	Full	DP	Eis	W	Full	U	3	Bld	.....	W	Shel	½Fl	6.50	26	Lav	34x5	34x5	.....	Fir	3700	130					
Reo F	1185	Own	4½x4½	27.2	L	C	Own	PT	S	John	G	.....	Own	DD	NE	NE	Own	A	3	Own	Pen	B	Own	Flot	4.7	17.3	Own	34x4½*	34x4½*	Pru	Fir	2560	128					
Samson 25	995	Own	3 11/16x5¼	21.8	H	C	Own	Pt	FS	Zen	G	Mon	Own	D	Rm	AL	Own	A	3	Own	Own	S	Own	½Fl	6.83	24.12	Own	35x5*	35x5*	Own	Hay	2635	118					
Service 15	.....	Mid 408	3 5/8x5	21	H	C	Lng	Fin	F	Sheb	G	.....	B-Li	DP	Rm	RE	B-Li	U	3	M-E	Shel	B	Eat	½Fl	5.625	22.1	Own	34x4½*	35x5*	Det	.....	3100	132					
*Standard 75	1330	Cont N	3¾x5	22.5	L	C	Lng	Fir	F	Strm	V	.....	B-Li	DD	Eis	.....	B-Li	U	3	Spi	Per	W	Tim	½Fl	5.6	24.3	Ros	33x5*	33x5*	Dis	Fir	3000	134					
*Stewart Utility Wagon	1245	Buda	3 5/8x5 1/8	21	L	C	Bus	PT	F	Zen	G	.....	.....	DP	Rm	.....	.....	U	3	Spic	Det	I	Clark	D	5.5	16.99	Ros	34x4½*	34x4½	Way	Fir	3150	128					
Stewart 15	1445	Buda MU	3 5/8x5½	21	L	C	Bus	PT	F	Zen	G	.....	Full	DP	Eis	Dy	Full	U	3	Spic	Det	I	Clark	D	6.7	26.8	Ros	35x5*	35x5*	Way	Fir	3200	130					
Thomart Speed	1795	Hin	4 x5¼	25.6	L	C	Fed	H	F	Strm	G	.....	War	DP	Wes	W	W-Gr	U	3	.....	Stan	S	Eat	½Fl	5.125	.....	Ros	34x5*	34x5*	Bim	Fir	3600	134					
U.S.U	.....	Own	3 5/8x5½	21.2	L	C	Lng	Fin	F	Strm	V	.....	Full	DD	Bos	Bos	Full	U	3	Bld	Shel	B	Clark	½Fl	6.25	25	Lav	34x5	34x5	Sch	Fir	3400	138					
Yellow Cab M42 1¼	1640	Cont 4-V	3¾x5	22.5	L	T	Lng	Fin	FS	Zen	G	.....	B-Li	DD	Bos	.....	B-Li	U	3	Spic	Math	W	Timk	½Fl	7.2	24	Gem	35x5*	35x5*	Stn.	Fir	2850	130					
1½ Ton																																					
Ace 1½	.....	Buda WU	3¾x5 1/8	22.5	L	T	Mod	ZZT	S	Zen	V	.....	Full	DP	Eis	W	Full	A	3	UM	Math	W	Timk	½Fl	7.75	30.1	Ros	34x3½	34x5	Sch	Fir	4750	144					
*Acme 30	.....	Cont N	3¾x5	22.5	L	T	GO	C	FS	Rayf	V	Dup	B.B.	DP	Eis	Bos	Cott	U	3	Bld	Det	W	Timk	½F	7.2	.....	Ros	34x3½	34x5	Bim	.....	3400	129					
Apex D	1915	Buda WU	3¾x5 1/8	22.5	L	C	GO	C	F	Strm	V	.....	Full	D	AuI	Op	Full	U	3	Bld	Det	I	Torb	D	8.1	24.1	Lav	34x3½	34x4	Roy	Fir	3070	130					
Armleder 21B	2425	Buda CTU	3¾x5¼	22.5	L	P	Lng	Fin	F	Zen	V	.....	Full	DD	Bos	W	Full	U	3	Spic	Math	W	Timk	Flot	7.75	29	Ros	34x3½	34x6	StM	.....	4400	Op					
*Armleder 40B	2850	Buda HTU	4¼x5½	28.9	L	P	Lng	Fin	F	Zen	G	Phar	B-Li	DD	Bos	W	B-Li	U	4	Spic	Math	W	Timk	Flot	7.75	29	Ros	34x3½	34x6	StM	.....	4500	...					
*Armleder 40C	2850	Cont C-4	4½x5¼	27.2	L	P	Lng	Fin	S	Zen	G	Phar	B-Li	DD	Bos	.....	B-Li	U	4	Spic	Math	W	Timk	Flot	7.75	29	Ros	34x3½	34x6	StM	.....	4500	Op					
Atco B	.....	Buda CTU	3¾x5¼	22.5	L	C	Chic	PT	F	Strm	G	.....	Full	D	Eis	W	Full	U	3	Hart	GC	W	Wis	.....	7.25	29	Ros	34x5*	36x6*	Smi	Fir	4200	132					
Atco B 1	.....	Buda CTU	3¾x5¼	22.5	L	C	Chic	PT	F	Strm	G	.....	Full	D	Eis	W	Full	U	3	Hart	GC	I	Torb	D	7	28	Ros	34x5*	36x6*	Std	Fir	3600	146					
*Atlas 44	1950	Buda WTU	3¾x5 1/8	22.5	L	C	Own	H	F	Zen	G	.....	M&E	DP	Opt	AK	Own	U	3	.....	IC	W	Own	½Fl	6	16.8	Ros	36x6	36x6	Wd	.....	4500	144					
Atterbury 20R	2475	Cont J4	3¾x5	22.5	L	C	Own	Fin	F	Zen	V	Sim	Full	DD	Ber	.....	Full	U	3	Spic	SP	W	Timk	¾ Fl	7.75	31	Ros	34x3½	34x5	Arc	Fir	4500	144					
*Autocar F	1950	Own 2	4¼x4½	18	L	C	Own	Fin	S	Strm	G	.....	Own	DP	.....	.....	Own	A	3	.....	.....	R	Own	Flot	8.3	33.2	Ros	34x4	34x6	Hoo	.....	3600	97					
Autocar G	2050	Own 2	4¼x4½	18	L	C	Own	Fin	S	Strm	G	.....	Own	DP	.....	.....	Own	A	3	.....	.....	R	Own	Flot	8.3	33.2	Own	34x4	34x6	Hoo	.....	3700	120					
*Available H1½	2450	Her O	4 x5	25.6	L	C	Chic	Fin	F	Strm	V	Her	B-Li	DD	Bos	.....	B-Li	U	3	M-E	Tut	W	Timk	½Fl	7	28	Ros	36x3½	36x5	Sch	.....	4000	145					
Bell E	2100	Buda	3¾x5¼	22.5	L	C	Chic	PT	F	Strm	V	Dup	B.B.	DP	Eis	.....	Det	U	3	UP	Det	I	Russ	D	8.8	25.7	Gem	35x5*	36x6*	Bim	Fir	3500	136					
Bessemer H2	.....	Cont-N¾	3¾x5	22.5	L	C	Stan	C	FS	Strm	G	.....	B.B.	DP	Bos	Bj	B-Li	A	3	Arv	Per	R	LM	½Fl	.....	.....	Ros	36x3½	36x5	Sch	Fir	3800	144					
Bridgeport A 1½	2350	Buda WU	3¾x5 1/8	22.5	L	C	Own	Fin	FS	Strm	G	Pier	B.B.	D	Eis	.....	B-Li	U	3	Hart	Per	W	Timk	½Fl	7.25	.....	Ros	34x3½	36x6	Jon	Fir	3800	144					
*Brinton C	2500	Cont N-3¼	3¾x5	22.5	L	C	Bus	PT	F	Strm	G	.....	B-Li	D	Bos	.....	B-Li	U	3	Spic	Tut	W	Wis	¾ Fl	.....	33.6	Ros	34x4	34x5	Sch	.....	3900	138					
Brockway S-7	.....	Wis SU-3	4 x5	25.6	H	C	Bus	Fir	F	Strm	V	Phar	B-Li	DD	Eis	.....	B-Li	U	3	Spic	Mer	W	Timk	½Fl	7.75	31.2	Gem	36x4	36x6	Hoo	.....	4000	140					
*Buffalo Model 9	2750	Her CU	4 x5½	25.6	L	C	Own	T	F	Zen	V	Sim	Covt	D	Bos	Bos	Covt	...	3	Spic	Shel	W	Shel	½Fl	7.75	.....	Ros	Opt	Opt	Jon	Gdy	5400	155					
*Chicago C1½	.....	Her O	4 x5	25.6	L	C	Brm	PT	F	Strm	G	Her	B-Li	D	Bos	.....	B-Li	U	3	Pet	Math	W	Timk	½Fl	7	25.8	Gem	36x3½	36x5	Opt	Stu	4500	144					
Climber A-20	2050	H-Sp 7000	3½x5	19.6	L	T	Own	PT	FS	Strm	V	.....	Hart	DP	AtK	W	Mun	U	3	Hart	Lah	I	Torb	D	8	36.1	Ros	36x6*	38x7*	Roy	Fir	4150	146					
Clydesdale 20	2385	Cont N	3¾x5	22.5	L	T	Own	PT	FS	Zen	V	Own	B-Li	DD	Eis	Bj	B-Li	U	4	Spic	Stan	W	Timk	½Fl	7.2	24	Ros	34x5*	34x5*	.....	Fir	3500	136					
Collier 19	.....	Cont N¾	3¾x5	22.5	T	P	Lng	PT	S	Zen	V	Mon	Full	DP	Eis	...	Full	U	3	UP	Math	W	Timk	½Fl	7.75	31	Own	36x4	36x6	Bim	Fir	4000	144					
Commerce 12	1800	Cont N	3¾x5	22.5	L	T	Lng	Fin	S	Zen	V	.....	B-Li	DP	Eis	Bj	B-Li	U	4	Spic	Det	I	Torb	D	6.2	26.3	Jac	35x5	35x5	Bim	Fir	3100	130					
Concord A	3150	Buda ITU	4 x5½	25.6	L	C	Bus	PT	F	Zen	G	Mon	B-Li	DP	Eis	.....	B-Li	U	4	Spic	Per	W	Timk	½Fl	8.75	35	Ros	36x3½	36x5	Arc	Fir	5200	140					
Corbitt D-22	2200	Cont N-¾	3¾x5	22.5	L	C	McC	Fin	FS	Strm	V	Sim	B-Li	DD	Eis	.....	B-Li	U	3	Hart	Shel	W	Shel	½Fl	6.5	21.3	Ros	34x3½	36x5	Bim	Fir	4000	140					
Cyclone A	2300	H-Sp 7000	3½x5	19.6	L	T	Lng	PT	FS	Sheb	G	.....	W-Gr	D	Wes	W	W-Gr	U	3	Nor	Row	I	Torb	D	8.23	26.66	Ros	34x5*	36x6*	Day	Opt	3000	136					
Dart S	.....	Buda WU	3¾x5 1/8	22.5	L	T	Own	C	S	Zen	V	Pier	Full	DD	Eis	.....	Full	U	3	Spic	Per	W	Own	.....	7.5	22.5	Ros	34x3½	34x6	Pru	.....	3800	140					
Day Elder B	2000	Cont N	3¾x5	22.5	L	T	Bus	Fin	FS	Zen	G	.....	Covt	DD	Eis	.....	Covt	U	3	Hart	IC	W	Shel	½Fl	7.8	32.03	Gem	34x3½	34x5	Jon	Fir	3300	144					
Dearborn F	2180	Buda WU	3¾x5¼	22.5	L	T	Chic	Fin	FS	Strm	V	.....	Full	DP	Bos	.....	Full	U	3	Arv	Tut	W	Wis	½Fl	8.5	25.5	Dit	34x4	34x5	.....	.....	3280	126					
Dearborn FX	2300	Buda WU	3¾x5¼	22.5	L	T	Chic	Fin	FS	Strm	V	.....	Full	DP	Bos	.....	Full	U	3	Hart	Tut	W	Wis	½Fl	8.5	25.5	Dit	34x4	34x5	.....	.....	3600	138					
*Defiance D	1845	GBS	3¾x5	22.5	L	P	Per	C	FS	Strm	V	.....	B.B.	DP	Eis	AL	G-Le	U	3	Arv	Det	I	Torb	D	8.1	21	Own	35x5*	36x6*	StM	Fir	3200	140					

Trade Name and Model	Chassis Price	ENGINE DETAILS: Make and Model Number 4 Cylinder unless otherwise noted	Bore and Stroke	N. A. C. C. Horsepower	Valve Arrang't	How Cooled	Radiator (Make)	Radiator (Type)	Lubrication	Carburetor	Fuel Feed	Governor (Make)	Clutch (Make)	Clutch (Type)	Ignition System	Engine Starter	GEARSET: Make	Location	Speeds	Universal (Make)	Springs (Make)	REAR AXLE: Final Drive	Make	Type	Total Gear Reduction in High	Total Gear Reduction in Low	Steering Gear (Make)	TIRES, WHEELS, RIMS: *Pneumatic †Dual Front	Rear	Wheels (Make)	Rim Equipment	Chassis Weight (Stripped)	Wheelbase
1½ Ton—Con'd		1			2	3	4	5	6	7	8	9	10	11	12	13	14	15		16	17	18	19	20			21			22	23		
Denby 33	2145	ContN¾	3¾x5	22.5	L	T	Lng	PT	FS	Strm	G	.....	Full	DD	Eis	RE	Full	U	3	Up	Det	I	Clark	D	7.1	27.32	Ros	35x5*	38x7*	Mot	Fir	3740	136
Diamond T–Farm Spec	2525	Hin	3⅝x5¼	22.5	L	T	GO	Fin	F	Strm	G	Own	Covt	DD	Bos	.....	Covt	U	3	Spic	Math	W	Own	½Fl	8.2	29.9	Gem	36x3½	36x5	.....	.....	5100	144
Diehl B	.....	H-Sp 7000	3½x5	19.6	L	T	.....	H	FS	Zen	V	.....	M-E	.....	Bos	.....	Durs	...	3	M-E	Row	I	Torb	D	5.3	.....	Ros	.....	.....	Wan	.....	2500	120
D-Olt A	2450	H-Sp 7000	3½x5	19.6	L	T	GO	PT	S	Zen	V	Dup	B.B.	.....	Bos	.....	Cott	...	4	Spic	SP	W	Timk	½Fl	8.25	.....	Ros	34x4	34x5	.....	.....	4500	168
Douglas G–1½	1750	Buda WU	3¾x5½	22.5	L	S	Own	PT	P	Sheb	V	.....	Full	DP	Eis	.....	Full	U	3	Arv	Own	I	Torb	D	8	23.1	Ros	24x3½	34x5	Own	Fir	3725	126
Douglas GW	1750	Wei	3¾x5½	22.5	H	C	Own	PT	F	Sheb	V	.....	B.B.	DP	Eis	.....	G-Le	U	3	Arv	Own	I	Torb	D	8	23.1	Ros	24x3½	34x5	Own	Fir	3725	126
Erie E-1½	.....	Buda CTU	3¾x5¼	22.5	L	C	Fed	C	FS	Zen	V	.....	Full	D	Bos	Bos	Full	A	3	Arv	Per	W	Shel	½Fl	7.8	31.2	Ros	36x6*	36x6*	Bim	Fir	4400	144
Federal TE	2175	Cont C4	4⅛x5¼	27.2	L	C	Own	PT	FS	Zen	G	Phar	B.B.	DP	Eis	.....	Det	A	4	Spic	Mat	W	Timk	Flot	8.5	37.4	Gem	36x3½	36x5	Sch	Fir	4250	144
Forschler C	.....	Cont N	3½x5	19.6	L	C	Own	...	FS	Zen	G	Dup	Full	...	Bos	Op	Full	...	3	Hart	Own	W	Shel	.....	.....	.....	Ros	36x3½	36x5	Smi	.....	3670	120
Front Drive C	2800	Buda CTU	3¾x5¼	22.5	L	G	EM	PT	S	Zen	G	Pier	B.B.	DD	Spl	Op	Own	A	3	Own	Own	W	Own	½Fl	8	32	Lav	34x5	34x5	Stn	.....	3200	Op
*Garford 25 B	2190	Buda WU	3¾x5⅛	22.5	L	C	Own	Fin	S	Strm	V	.....	.....	DD	Spl	.....	Own	A	3	Spic	Per	W	Timk	½Fl	7.75	.....	Ros	36x3½	36x5	.....	.....	4000	135
Gersix M	3100	Buda ITU	4 x5½	25.6	L	C	Idl	C	F	Strm	V	Mon	B.B.	.....	Bos	.....	Cott	U	3	Bld	Tut	W	Shel	.....	7.7	31	Ros	36x3½	36x6	Jon	.....	4620	142
Giant 15A	2250	Cont N	3¾x5	22.5	L	C	Idl	.....	FS	Sheb	G	.....	B-Li	DD	Eis	.....	B-Li	U	3	Spic	Math	W	Timk	½Fl	7.8	24.97	Jac	34x3½	34x5	Way	.....	3450	138
Graham Brothers	1325	Dodge	3⅞x4½	24.1	L	T	McC	PT	FS	Stew	V	.....	Dod	DD	NE	NE	Dod	U	3	Var	Det	S	Own	½Fl	6.28	29.29	Dod	33x4½*	36x6	.....	.....	2540	140
Gramm-Pioneer 15	1750	Cont N	3¾x5	22.5	L	T	Own	Fin	S	Strm	G	.....	Full	DD	NE	NE	Full	U	3	Own	Per	I	Clark	D	7.6	30.4	Ros	36x3½	36x5	Bim	Fir	3660	138
Gramm-Pioneer 65	2250	Cont N	3¾x5	22.5	L	T	Own	Fin	S	Strm	G	.....	Full	DD	NE	NE	Own	A	3	Own	Per	I	Eat	½Fl	7.8	28	Ros	36x3½	36x5	Bim	Fir	3860	138
G. W. W. Farm Spec	1485	Wei	3¾x5½	22.5	H	C	Chic	...	F	Sheb	G	.....	Full	...	Del	Del	Full	U	3	Acm	GC	I	Clark	D	7	.....	Woh	35x5	35x5	Roy	Fir	3200	142
Higrade B20	2500	Cont K4	4⅛x5¼	27.2	L	P	Per	PT	FS	Zen	V	.....	Full	DP	Eis	AL	Full	U	3	Bld	Per	W	Shel	.....	7.7	31	Lav	36x6	36x6	Det	Fir	3100	130
H. R. L.-R	3250	Hink HAA	4 x5¼	25.6	L	G	Fed	Fin	F	Zen	V	Hin	B-Li	DP	Bos	GD	B-Li	U	4	Spic	Shel	W	Shel	.....	7.75	30	Ros	36x4	36x7	Sch	Gdy	4560	144
Hug T	1350	Buda MU	3⅝x5⅛	21	L	C	Per	C	F	Zen	G	.....	W-Gr	DP	Spl	.....	W-Gr	U	4	Bld	Tut	B	Clark	½Fl	5.5	26.62	Ros	34x5	34x5	Stn	Fir	2900	118
*Hurlburt A-A	1950	Buda	3¾x5	22.5	L	C	Own	Fin	FS	Zen	G	Dup	B-Li	DD	Eis	.....	B-Li	U	3	Spic	Per	W	Own	.....	7.5	.....	Ros	34x4	34x5	Way	.....	3000	148
Huron-Erie	2290	Buda CTU	3¾x5¼	22.5	L	C	.....	Fin	F	Zen	V	Pier	B.B.	D	Bos	.....	Cott	U	4	Det	Det	I	Clark	D	7	36.4	Jac	35x5*	38x7*	AuW	Fir	.....	144
Independent G (Iowa)	2040	Cont J	3¾x5	22.5	L	C	GO	PT	FS	Strm	V	.....	Full	DD	Bos	.....	Full	U	3	Bld	GC	I	Russ	D	8.2	.....	Lav	34x3½	34x5	StM	Fir	3875	142
Indiana 12	.....	Wau BUX	3¾x5¼	22.5	L	C	McC	Fin	F	Strm	G	Wau	B.B.	DP	Eis	.....	B-Li	A	3	Spic	Shel	W	Shel	½Fl	7.8	31.2	Woh	34x3½	34x5	Bim	.....	4160	146
International 31	1650	Own	3½x5¼	19.6	L	C	Own	Fin	FS	Ens	G	Own	Own	DP	Bos	Own	Own	A	3	Own	.....	I	Own	D	8	26.5	Own	.....	.....	Own	.....	3190	128
Kalamazoo GI	1800	Cont N	3¾x5	22.5	L	T	GO	C	FS	Strm	V	Pier	Full	D	Eis	Dy	Full	A	4	B.B.	Shel	W	Wis	½Fl	8.5	40.8	Ros	34x4	34x5	Bim	.....	4450	144
Kalamazoo LG	2645	Wis SU	4 x5	25.6	H	T	GO	PT	F	Strm	V	Pier	Full	D	Bos	Dy	Ful	A	4	B.B.	Shel	W	Shel	½Fl	8.6	40.8	Ros	36x4	36x7	Smi	.....	5080	144
*Kelly-Springfield K31	2700	Own	3¾x5¼	22.5	L	C	Lng	Fin	F	Zen	G	Pier	Own	C	Eis	W	Covt	A	3	.....	Per	C	Own	D	8.6	31.58	Gem	36x3½	36x6	StM	.....	4475	Op
*Kelly-Springfield K34	2700	Own	3¾x5¼	22.5	L	C	Lng	Fin	F	Zen	G	Pier	B.B.	C	Eis	W	Covt	A	3	Pet	Per	W	Own	½Fl	8.6	31.58	Gem	36x3½	36x6	StM	.....	4670	Op
Kissel General Utility	1975	Own 40000	3⅞x5½	24.1	L	C	McC	PT	S	Strm	V	Pier	W-Gr	DP	Eis	.....	W-Gr	U	3	Spic	Mat	W	Shel	½Fl	7.8	28.5	Jac	36x3½	36x5	Pru	.....	4100	152
Kleiber A	.....	Cont K4	4⅛x5¼	27.2	L	C	Per	C	FS	Strm	G	Sim	.....	DD	Bos	.....	B-Li	A	4	Spic	.....	W	Timk	½Fl	7.1	37.51	Ros	36x3½	36x6	Smi	.....	5200	143
Koehler D	2150	H-Sp	3½x5	19.6	L	T	Own	PT	F	Zen	G	Sim	B-Li	D	Spl	.....	.....	U	3	.....	Math	W	Dun	½Fl	7.25	.....	Lav	34x3½	34x5	Way	.....	3600	137
*Larrabee J4	.....	Cont J4	3¾x5	22.5	L	C	R-T	PT	F	Zen	G	Phar	B-Li	DD	Bos	.....	B-Li	U	3	.....	Shel	W	Shel	½Fl	7.66	31.4	Gem	34x3½	34x5	Hoo	.....	4500	138
Luedinghaus W	2490	Wau BUX	3¾x5¼	22.5	L	C	Own	Pit	FS	Sheb	G	Wau	B.B.	D	Spl	...	Det	U	3	Spic	Tut	W	Wis	½Fl	8.6	26.6	Lav	34x3½	34x5	StM	.....	4100	144
Maccar L	.....	Cont C4	4⅛x5¼	27.2	L	C	Own	Fin	FS	Strm	G	Pier	B-Li	DD	Eis	Bos	B-Li	U	4	Spic	Mer	W	Timk	½Fl	8.75	46.81	Ros	36x4	36x6	Day	Fir	4800	150
Mack AB1½	3000	Own AB	4 x5	25.6	L	C	Own	C	S	Zen	G	Own	Own	DD	Spl	.....	Own	U	4	Spic	Mer	C	Own	D	6.99	37.84	Own	36x4	36x3½‡	.....	.....	4900	Op
Mack AB1½	3450	Own AB	4 x5	25.6	L	C	Own	C	S	Z	G	Own	Own	DD	Spl	.....	Own	U	4	Spic	Mer	R	Own	Flot	7.6	36.80	Own	36x4	36x3½†	.....	.....	5300	Op
*Master JW	2290	Buda OU	4⅛x5½	27.2	L	C	Chic	PT	S	Mas	V	McC	Full	DD	Eis	.....	Full	U	3	Spic	Det	W	Timk	½Fl	Opt	Opt	Ros	34x3½	34x5	Pru	.....	3900	142
*Master JWL	2365	Buda OU	4⅛x5½	27.2	L	C	Chic	PT	S	Mas	V	McC	Full	DD	Eis	.....	Full	U	3	Spic	Det	W	Timk	½Fl	Opt	Opt	Ros	34x3½	34x5	Pru	.....	3900	160
*Master JD	2590	Buda OU	4⅛x5½	27.2	L	C	Chic	PT	S	Mas	V	McC	Full	DD	Eis	.....	Full	U	3	Spic	Det	W	Walk	Flot	Opt	Opt	Ros	34x3½	34x5	Walk	.....	3900	142
*Master JDL	2665	Buda OU	4⅛x5½	27.2	L	C	Chic	PT	S	Mas	V	McC	Full	DD	Eis	.....	Full	U	3	Spic	Det	W	Walk	Flot	Opt	Opt	Ros	34x3½	34x5	Walk	.....	3900	160
Maxwell	.....	Own	3⅝x4½	21.	L	T	Own	PT	FS	Eag	G	.....	Own	C	AtK	.....	Own	U	3	Own	.....	W	Own	½Fl	7.25	34.4	Own	35x5	35x5	Kel	Fir	2385	124
Menominee H	2475	Wis EAU	4 x5	25.6	L	C	Own	Fin	FS	Strm	G	Mon	Det	DP	Eis	Opt	Cott	U	3	Spic	Tut	W	Wis	½Fl	8.25	30.36	Ros	36x3½	36x5	Stn	Fir	4220	144
Moline 10	1695	Own NT	3½x5	19.6	H	C	Mod	C	F	Till	G	Phar	.....	DP	Spl	.....	Own	U	3	Arv	Math	I	Torb	.....	8	38	Ros	34x5*	36x6*	.....	Fir	.....	130
*Moreland BX	1980	Her O	4 x5	25.6	L	T	Own	C	F	Zen	G	Her	B-Li	DD	AuL	AL	B-Li	U	3	Ther	US	W	Timk	½Fl	7	28	Ros	36x3½	36x6	Smi	.....	4125	132
Napoleon 11	1860	Gr-B	3½x5	19.6	H	T	Own	PT	F	Scoe	G	.....	Full	D	Bos	Bos	Full	U	3	Bld	Math	I	Keno	D	8	24	Lav	35x5*	36x6*	Roy	Fir	3450	133
Nelson-LeMoon G2	.....	Cont K4	4⅛x5¼	27.2	L	C	Chic	Fin	F	Strm	G	Phar	B-Li	DD	Bos	W	B-Li	U	3	Own	Tut	W	Timk	½Fl	7	.....	Ros	36x3½	36x6	Pru	Gdy	3400	Op
Noble B–31	2480	Buda CTU	3¾x5¼	22.5	L	C	Chic	Fin	F	Strm	V	Pier	Full	DP	Eis	W	Full	U	4	ME	.....	W	Shel	½Fl	8.66	41.5	Lav	36x4	36x7	Bim	Fir	4750	156
Norwalk	1925	Lyco K	3½x5	19.6	L	T	Stan	C	FS	Zen	V	.....	B.B.	D	Del	Dy	G-Le	U	3	UM	SPar	W	Shel	¾ Fl	7	75	.....	CAS	34x3½	34x5	E&O	Fir	3200	143
Norwalk 35 E Special	2285	Buda CTU	3¾x5¼	22.5	L	T	Stan	C	FS	Zen	V	.....	B.B.	D	Del	Dy	G-Le	U	3	Spic	Stan	W	Shel	¾ Fl	7.2	.....	Det	34x4*	34x5	E&O	Fir	3450	150
Ogden D1½	.....	Cont N	3¾x5	22.5	L	C	Chic	Fin	FS	Strm	G	Pier	B-Li	DD	Spl	.....	B-Li	U	3	M-E	Tut	W	Timk	½Fl	8.75	.....	Ros	36x3½	36x5	Stn	.....	3400	136
O. K. 1½T	2000	Buda ITU	4 x5½	25.6	L	G	R-T	PT	FS	Zen	V	Pier	Full	DD	Eis	.....	Full	U	3	Hart	Cham	W	Wis	½Fl	8.25	24.8	Ros	36x3½	36x5	Bim	.....	4310	146
Old Reliable A	2350	WisEU	4 x5	25.6	L	C	Chic	PT	F	Strm	V	Mon	Full	DD	Bos	Op	Full	U	3	Spic	Shel	W	Shel	½Fl	7.7	24.94	Ros	34x3½	36x6	StM	.....	4150	138
Paige 52-19	1950	Hin 400	4 x5¼	25.6	L	C	Own	Fin	F	Strm	V	Hink	B-Li	DD	Bos	.....	B-Li	A	4	Spic	Per	W	Timk	½Fl	7.7	37.51	Ros	34x3½	34x5	Own	Fir	4000	140
Pittsburgher A	3000	Own	3½x5	21.2	T	C	GO	Fin	F	Strm	V	.....	B-Li	DP	Bos	.....	B-Li	U	4	Spic	C	W	Own	.....	8.75	46.8	Ros	36x4	36x7	Smi	.....	5000	152
Power F	3150	Hink HA400	4 x5¼	25.6	L	C	GO	PT	F	Zen	G	Hin	Full	DD	Eis	W	Full	U	4	Arv	Row	W	Vul	F	7.75	37.2	Ros	36x5	36x7	StM	Fir	5300	150
Premocar	2350	Lyc-K	3½x5	19.6	L	T	.....	C	S	Zen	V	.....	BB	.....	Del	Dyn	G-L	U	3	Spic	Shel	W	Timk	½Fl	7	.....	Dit	36x6	36x6	.....	Fir	4200	130
Rainier R26	2490	Cont J-4	3¾x5	22.5	L	C	EM	Fin	FS	Zen	V	Pier	B-Li	DP	Eis	.....	B-Li	U	3	Spic	Per	W	Shel	.....	7.8	.....	Ros	34x3½	34x5	.....	Fir	3600	147
Reliance 10A	2400	Buda ITU	4 x5½	25.6	L	C	Bus	PT	FS	Strm	G	Pier	Full	DD	Eis	.....	Full	U	3	Pet	Shel	P	Badg	D	6.6	26.4	Ros	36x3½	36x5	Bim	Gdy	4500	150
Republic 11X	1795	Cont N3¾	3¾x5	22.5	L	C	Own	C	FS	Strm	G	.....	Full	DD	Bos	.....	Full	U	3	Hart	Math	I	Torb	D	8	18.84	Jac	34x3½	34x6	Nor	Fir	3656	144
Rowe CW1½	3000	Wis CAU	3¾x5	22.5	L	C	Fed	H	F	Zen	G	Sim	B-Li	DD	Bos	.....	B-Li	U	4	Spic	Shel	W	Shel	½Fl	6.5	26	Ros	36x6*	36x6*	Hoo	.....	3800	133
Rumely A	1990	Buda CTU	3¾x5¼	22.5	L	C	Mod	ZZT	F	Strm	G	Pier	Full	DD	Ber	.....	Full	U	3	Bld	Mat	W	Shel	½Fl	7.8	31.2	Gem	36x3½	36x5	Mot	Gdy	4100	144
Selden Unit 30	2250	Cont N	3¾x5	22.5	L	C	T	Lng	Fin	FS	Strm	G	Pier	B-Li	D	Eis	.....	B-Li	U	3	Spic	Per	W	Timk	½Fl	7	23.31	Lav	34x3½	34x5	Arc	.....	3560	137
Service 21	.....	Buda R U	3½x5½	19.6	L	T	C	Lng	Fin	FS	Strm	V	.....	Full	DD	Eis	.....	Full	U	3	Arv	Shel	W	Timk	½Fl	7.75	23.25	Ros	34x3½	34x5	Bim	.....	3450	137
Signal H	1950	Cont C4	4⅛x5¼	27.2	L	C	T	McC	Fin	FS	Strm	G	Pier	B-Li	DD	Eis	.....	B-Li	A	4	Spic	Shel	W	Timk	½Fl	7.75	31	Ros	34x4	36x6	St.M	.....	4760	146
Southern 15	2590	Cont N	3¾x5	22.5	L	C	T	R-T	PT	S	Zen	V	Pier	Full	DD	Bos	.....	Full	U	3	.....	Shel	W	Shel	.....	.....	.....	Ros	36x6	38x7	.....	.....	.....	144
Standard 1K	1600	Cont N	3¾x5	22.5	L	C	C	Lng	Fin	F	Strm	V	.....	B-Li	DD	Eis	.....	B-Li	U	3	Spic	Per	W	Timk	½Fl	7.2	23.97	Ros	34x3½	34x5	.....	Opt	3466	134
Sterling 1½	2885	Wau	4x5¾	25.6	L	C	C	Own	PT	F	Zen	V	Wau	B-Li	DD	Eis	.....	B-Li	U	4	Spic	Mat	W	Timk	½Fl	7	37.45	Ros	36x3½	36x5	Pru	.....	4750	142
Stewart 9	1790	Cont N¾	3¾x5	22.5	L	C	T	Bus	PT	FS	Zen	G	.....	Full	DP	Eis	.....	Full	U	3	Hart	Det	I	Clark	D	7.6	22.8	Gem	34x3½†	34x6	Way	Fir	3440	140
Stoughton B	2150	Wau BUX	3¾x5¼	22.5	L	C	C	Own	Fin	FS	Strm	G	Wau	B-Li	DD	Eis	.....	B-Li	U	3	Ther	Own	W	Shel	½Fl	7.8	31.2	Lav	36x3½	36x5	Roy	Gdy	3800	140
Tiffin GW	2100	Cont C4	4⅛x5¼	27.2	L	C	Own	Fin	FS	Sheb	G	Pier	Full	DD	Bos	W	Full	U	3	Pet	Kal	W	Shel	½Fl	7.7	23.25	Ros	36x3½	36x5	Smi	.....	3750	135
Tower J1½	2175	Cont C4	4⅛x5¼	27.2	L	C	C	Own	PT	S	Zen	G	.....	Full	DP	Eis	.....	Full	U	3	Bld	Det	W	Timk	½Fl	7.25	29	Ros	35x5*	38x7*	Pru	Fir	4520	142
Traffic-Speedboy	1595	Cont N4	3¾x5	22.5	L	T	Own	C	FS	Cart	V	.....	Covt	DP	Bos	GD	Covt	U	3	Ther	Det	I	Russ	D	6.15	22.5	Own	35x5*	35x5*	Day	Fir	3400	128
Transport 25	1495	Buda WU	3¾x5½	22.5	L	T	.....	.....	F	Strm	V	.....	Full	DP	Eis	.....	Full	U	3	Sped	Det	I	Clark	.....	7.25	21.7	Jac	34x3½	34x5	.....	.....	3700	130
Traylor B	2390	Buda WU	3¾x5½	22.5	L	C	GO	Fin	F	Zen	G	Sim	Covt	DD	Spl	.....	Covt	U	3	M-E	Mer	W	Shel	½Fl	7.8	.....	Ros	34x3½	34x6	Sch	Roy	4000	140
Triangle A	1985	Wau BUX	3¾x5¼	22.5	L	C	Per	ZZT	FS	Strm	G	Wau	Full	DD	Eis	.....	Full	U	3	UP	Det	I	Clark	D	7.25	29	Gem	34x3½	34x6	.....	Fir	3750	144

Triumph	1950	Buda MU	3¾x5½	21	L	C	Mod	PT	F	King	V	Pier	B.B.	D	Spl	.....	Cott	U	4	UP	Tut	W	Wis	½ Fl	7.25	.....	Lav	36x3½	36x5	Stn	Stn	.....	133
Ultimate A	3150	Buda ITU	4 x5½	25.6	L	C	Own	PT	F	Strm	G	Pier	B-Li	DD	Eis	Bos	B-Li	U	4	Spic	Shel	W	Shel	½ Fl	6.5	34.7	Ros	36x3½	36x6	Jon	Fir	4500	140
Diamond T—T	2250	Hin	3¾x5¼	22.5	L	C	GO	Fin	F	Strm	G	Own	Covt	DD	Bos	.....	Covt	U	3	Spic	Math	W	Timk	½ Fl	8.2	29.9	Gem	36x3½	36x5	.....	.....	4000	144
United A–1½	2445	Buda CTU	3¾x5¼	22.5	L	C	Mod	PT	F	Strm	G	Sim	Full	DD	Eis	Op	Full	U	3	Bld	Shel	I	Clark	D	7.6	30.4	Jac	34x3¾	34x5	Pru	Fir	4000	145
Ursus U 40	2500	Buda CTU	3¾x5¼	22.5	L	T	.....	PT	F	Strm	V	Pier	Det	D	Spl	.....	Cott	U	3	Ther	.....	W	Opt	.....	.....	.....	Ros	Opt	Opt	Roy	.....	.....	Op
U. S.-N	....	Cont N	3¾x5	22.5	L	C	Lng	Fin	FS	Strm	V	.....	Full	DD	Eis	Op	Full	U	3	Opt	Shel	I	Clark	D	7.6	25.3	Lav	36x3½	36x5	Sch	.....	3800	144
U. S.-N W	.....	Cont N	3¾x5	22.5	L	C	Lng	Fin	FS	Strm	V	.....	Full	DD	Eis	Op	Full	U	3	Opt	Shel	W	Shel	½ Fl	7.8	25.97	Lav	36x3½	36x5	Sch	.....	3900	144
Velie 46	1585	Cont N¾	3¾x5	22.5	L	C	Own	PT	FS	Strm	G	Mon	B.B.	D	Ber	.....	Durs	U	3	Arv	Mat	I	Torb	D	8	31.2	Ros	36x3½	36x5	Bim	Gdy	3650	133
Wilcox BB	.....	Own	4¼x5	28.9	L	C	.....	PT	S	Strm	G	Dup	Own	C	Bos	.....	Own	A	4	Own	Shel	R	Walk	½ Fl	8.25	39.9	Own	36x4	36x5†	.....	.....	4600	135
Wilson F	2270	Own	3¾x5½	22.5	L	P	Lng	PT	FS	Mar	G	Pier	B.B.	D	Eis	.....	Own	A	4	Ther	Per	W	Timk	½ Fl	7.75	24	Ros	36x3½	36x5	.....	.....	4800	142
Winther 39	.....	Wis CAU	3¾x5	22.5	L	P	Brm	PT	F	Strm	G	.....	Full	DD	Eis	W	Full	U	3	Pet	Det	I	Clark	D	7	21	Lav	34x3½	34x5	Own	Fir	3700	140
Winther 430	.....	Wis CAU	3¾x5	22.5	L	P	Brm	PT	F	Strm	G	.....	Full	DD	Eis	W	Full	U	3	Pet	Det	I	Clark	D	9	36	Lav	32x4	32x4	Own	Fir	4100	132
Wisconsin B (Sauk City)	2100	Cont	3¾x5	22.5	L	C	Chie	PT	F	Strm	V	Phar	B-Li	DD	Opt	Bos	B-Li	U	3	Spic	Det	W	Timk	½ Fl	8	.....	Lav	34x5*	36x6*	Bim	Gdy	4000	132
Wisconsin (Sauk City)	2500	Wau FU	4 x5¾	25.6	L	C	.....	PT	F	Strm	V	Wau	B-Li	DD	Bos	Bos	B-Li	U	4	Spic	.....	W	Timk	½ Fl	7.20	.....	Lav	34x5	36x6	.....	.....	.....	136
*Witt Will N	2450	Cont C4	4 1/16x5¼	27.2	H	G	Mod	Opt	FS	Zen	G	Pier	B-Li	DD	Eis	.....	B-Li	U	3	Spic	Del	W	Timk	½ Fl	7	30.36	Ros	36x3½	36x4	Arc	Fir	4000	144
Wolverine J1½	2020	Cont J	3¾x5	22.5	L	G	Lng	Fin	F	Strm	G	Phar	Full	DD	Spl	AL	Full	U	3	UP	Am	I	Russ	D	8.8	35.2	Gem	34x3½	34x5	Hay	Gdy	3500	140
2 Ton																																					
Acme 40	.....	Cont J4	3¾x5	22.5	L	C	GO	Fin	F	Zen	V	Dup	B.B.	DP	Eis	DL	Cott	U	3	Bld	Det	W	Timk	½ Fl	8.75	35	Ros	34x3½	34x5	Bim	.....	3980	141
*Autocar H	2950	Own 4	4 x5½	25.6	L	C	Own	Fin	S	Strm	G	.....	Own	DP	.....	.....	Own	A	4	.....	.....	R	Own	Flot	.....	.....	Ros	34x5	36x7	Hoo	.....	5600	114
*Autocar K	3075	Own 4	4 x5½	25.6	L	C	Own	Fin	S	Strm	G	Phar	Own	DP	.....	.....	Own	A	4	.....	.....	R	Own	Flot	7.72	46.3	Own	34x5	36x7	Hoo	.....	5750	138
*Autocar K	3075	Own 4	4 x5½	25.6	L	C	Own	Fin	S	Strm	V	Her	B-Li	DD	Bos	.....	B-Li	A	4	M-E	Tut	W	Timk	½ Fl	7	36.4	Ros	36x3½	36x6	Sch	.....	4400	147
*Available H 2	2750	Her O	4 x5	25.6	L	C	Chie	Fin	FS	Strm	V	Her	B-Li	DD	Bos	.....	B-Li	A	4	M-E	Tut	W	Timk	½ Fl	7	36.4	Ros	36x3½	36x6	Sch	.....	4400	147
Belmont D	2575	Buda	4¼x5½	28.9	L	C	R-T	Fin	FS	Zen	G	Pier	Full	DD	.....	Dyn	Full	U	3	UP	Math	I	Russ	D	7.4	29.6	Lav	34x3½	34x6	E&O	Fir	4635	144
Bethlehem GN	1595	Own	4 x5¼	25.6	L	T	GO	H	F	Zen	G	Pier	BB	DD	Bos	GD	Det	U	3	UP	Math	R	Wis	½ Fl	7.75	24.8	Lav	34x4	34x6	.....	.....	4100	138
Case TR	.....	Own K	4¼x5¾	28.9	H	C	Mod	C	S	Bent	G	Own	T-D	.....	Eis	.....	Own	U	3	Spic	Har	I	Torb	D	8	26	Opt	36x6	36x7	.....	Fir	4700	144
Clydesdale 42	2475	Cont N	3¾x5	22.5	L	T	Own	PT	FS	Zen	G	Own	B-Li	DD	Bos	.....	B-Li	U	3	Spic	Stan	W	Timk	½ Fl	7	23.3	Ros	36x3½	36x6	.....	.....	3800	146
Collier 20	.....	Cont C4	4 1/16x5¼	27.2	T	P	Lng	PT	FS	Zen	V	Pier	Full	DP	Eis	.....	Full	U	4	UP	Math	W	Timk	½ Fl	8.5	40.8	Ros	36x4	36x7	Bim	Fir	4800	152
Commerce 16	2150	Cont N	3¾x5	22.5	L	T	Lng	Fin	S	Zen	V	.....	B-Li	DP	Eis	Bj	B-Li	U	4	Spic	Am	I	Torb	D	7	28.8	Jac	35x5	36x6	Bim	Fir	3360	137
Concord AX	3250	Buda ITU	4 x5½	25.6	L	C	Bus	PT	F	Zen	G	Mon	B-Li	DD	Eis	.....	B-Li	U	4	Spic	Per	W	Timk	½ Fl	8.75	35	Ros	36x3½	36x5	Arc	Fir	5300	150
Corbitt C–22	2600	Cont C4	4 1/16x5¼	27.2	L	C	McC	Fin	FS	Strm	V	Sim	B-Li	DD	Eis	.....	B-Li	U	3	Hart	Shel	W	Shel	½ Fl	8.66	29.4	Ros	36x3½	36x7	Bim	Fir	5265	148
Day Elder D	2400	Cont C2	4 1/16x5¼	27.2	L	C	Bus	Fin	FS	Zen	G	Mon	Covt	DD	Eis	.....	Covt	U	4	Hart	IC	W	Shel	½ Fl	8.66	41.17	Gem	36x4	36x7	Jon	Fir	3950	144
Dearborn 48	2590	Buda WU	3¾x5 1/8	22.5	L	T	Chie	Fin	FS	Strm	V	.....	Full	DP	Bos	.....	Full	U	3	Hart	.....	W	Wis	½ Fl	9.6	28.8	Dit	34x4½*	34x7	.....	.....	3750	148
*Defiance E	2075	GBS	3¾x5	22.5	L	P	Per	C	FS	Strm	V	.....	B.B.	DP	Eis	AL	G-Le	U	3	Arv	Det	I	Torb	D	9.1	24	Own	35x5*	38x7*	StM	Fir	3500	140
Denby 34	2395	Cont N¾	3¾x5	22.5	L	T	Lng	PT	FS	Strm	G	Mon	Full	DD	Eis	.....	Full	U	4	Up	Det	I	Russ	D	8.85	42.5	Ros	36x3½	36x6	Hay	Fir	3950	144
Dependable C	2350	Buda CTU	3¾x5¼	22.5	L	C	Lng	Fin	F	Zen	V	Mon	Full	DD	Spl	AL	Full	U	3	Aem	Per	W	Wis	½ Fl	8.2	31.5	Ros	34x3½	34x5	Bim	Fir	4120	Op
*Dorris K4	3400	Own	4¼x5½	28.9	H	C	McC	Fin	F	Strm	G	Own	Own	DP	Bos	W	W-Gr	A	4	Spic	Row	W	Timk	Flot	7.75	38.67	Ros	36x4	36x7	Smi	Fir	5150	162
Douglas H	2250	Buda HTU	4¼x5½	28.9	L	C	Own	PT	F	Sheb	V	Pier	Full	DP	Eis	.....	Full	U	3	Arv	Own	I	Torb	D	8.50	28.1	Ros	34x4	36x7	Own	Fir	3900	128
Douglas HW–2	2350	Buda HTU	4¼x5½	28.9	L	C	Own	PT	F	Sheb	V	Pier	Full	DP	Eis	.....	Full	U	3	Arv	Own	W	Wis	.....	8.75	29.1	.....	34x4	36x7	Own	Fir	3950	132
Drake T-60	2495	H-Sp-11000	3¼x5	25.3	L	C	.....	C	FS	Zen	V	Mon	B.B.	.....	Ber	Bj	G-Le	U	3	UM	GC	W	Wis	½ Fl	Op	.....	Woh	35x5*	36x6*	Day	Fir	3600	140
Duplex A	2775	Hink HAA	4 x5¼	25	L	P	Mod	PT	F	Strm	G	.....	Covt	DD	Eis	W	Covt	U	3	Pet	Penn	W	Shel	½ Fl	6.5	26.1	Ros	35x5*	38x7*	Pru	.....	4400	145
Eagle 100	2275	Buda CTU	3¾x5¼	22.5	L	P	Own	C	F	Zen	G	.....	Covt	DD	Eis	.....	Covt	U	3	M-E	Cham	I	Russ	D	8.8	31.8	Lav	34x4	34x7	Stn	Fir	4100	130
Fageol 1½–2	3000	Wau-BUX	3¾x5¼	22.5	L	T	Mod	C	F	Zen	V	Wau	Det	DD	Spl	.....	Own	U	5	UP	Math	W	Fink	½ Fl	5.6	59.5	Ros	34x3½	34x6	Pru	.....	4300	136
Fargo S	1600	Cont N	3¾x5	22.5	L	T	Own	Fin	S	Rayf	G	.....	Full	DP	Bos	.....	Full	U	4	Spic	Shel	I	Russ	D	9.5	.....	Jac	36x4	36x6	.....	.....	3900	144
Federal UE	2425	Cont C4	4 1/16x5¼	27.2	L	C	Own	PT	FS	Zen	G	Phar	B.B.	DP	Eis	.....	Det	A	4	Spic	Math	W	Timk	Flot	9.25	40.7	Gem	36x4	36x7	Sch	Fir	4800	156
Forschler D	.....	Cont C4	4 1/16x5¼	27.2	L	C	E-M	PT	FS	Zen	...	Dup	Full	.....	Bos	Op	Full	...	3	Hart	Own	W	Shel	.....	.....	.....	Ros	34x4	36x7	Smi	.....	4735	144
Fulton C	1985	HSp7000	3½x5	19.6	L	C	GO	H	FS	Cart	G	.....	Covt	DP	Ber	.....	Covt	...	3	UP	.....	I	Russ	D	10.2	.....	Lav	34x4	34x6	Hoo	.....	3300	137
*Gary I	2450	Buda HU	4½x5½	32.4	L	C	Chic	Fin	F	Mas	G	McC	Full	DD	Eis	.....	Full	U	3	Bld	Math	W	Timk	Flot	7.25	21.75	Ros	36x3½	36x6	Pru	Gdy	3800	144
G.M.C. K–20	2550	Own	4 x5½	25.6	L	B	Own	Fin	F	Mar	G	Own	Own	DD	Eis	Own	Own	U	3	Own	Det	W	Timk	¾ Fl	6	21.9	Own	36x6	36x6	.....	.....	3815	178
G. M. C. K-41A	2375	Own	4 x5½	25 6	L	B	Own	Fin	F	Mar	G	Own	Own	DD	Eis	Opt	Own	U	7	Own	Det	W	Timk	Flot	7.25	49.1	Own	36x4	36x7	Own	.....	5080	158
G.M.C. K-41B	2375	Own	4 x5½	25.6	L	B	Own	Fin	F	Mar	G	Own	Own	DD	Eis	Opt	Own	U	7	Own	Det	W	Timk	Flot	7.25	49.1	Own	36x4	36x7	Own	.....	5080	158
G.M.C. K-41T	2450	Own	4 x5½	25.6	L	B	Own	Fin	F	Mar	G	Own	Own	DD	Eis	Opt	Own	A	7	Own	Det	W	Timk	Flot	8.5	57.5	Own	36x4	36x8	Own	.....	5180	127
Gramm-Pioneer 20	2475	Cont C2	4 1/16x5¼	27.2	L	C	Own	Fin	S	Strm	G	Pier	Full	DD	NE	Own	Own	A	4	Own	Per	W	Shel	½ Fl	7.7	36.7	Ros	36x4	36x7	Bim	Fir	4910	144
Hal-Fur D	2000	Hin HA-400	4 x5½	25.6	L	C	GO	PT	F	Strm	V	Hin	B.B	P	Bos	W	B-Li	A	4	Pet	Per	W	Timk	½ Fl	5.5	24	Gem	35x5*	36x6	Stn	Fir	3400	Op
*Harvey WOA	2650	Buda ETU	4¼x5½	28.9	L	C	Own	Fin	F	Strm	G	McC	Full	DD	Spl	.....	Full	U	3	Spic	Shel	W	Shel	½ Fl	7.75	23.2	Ros	34x4	34x7	StM	.....	5300	160
Indiana 20	.....	Own 38	4 1/16x5½	27.2	L	C	McC	Fin	F	Strm	G	Pier	B.B.	DP	Eis	.....	B-Li	A	4	Spic	Shel	W	Shel	½ Fl	7.7	41.3	Woh	36x4	36x7	Bim	.....	5360	150
International 41	2100	Own	3½x5¼	19.6	L	C	Own	Fin	FS	Zen	G	Own	Own	DP	Bos	Own	Own	A	4	Own	....	I	Own	D	9	.....	Own	.....	.....	.....	Own	.....	3525	128
Kearns N2	1650	Her O	4 x5	25.6	L	P	Own	H	FS	Zen	G	Pier	Full	DD	Ber	AL	Full	U	3	ME	Math	W	Shel	½ Fl	7.75	31	Lav	34x4	34x7	Way	.....	3400	136
Keystone 2	2175	Buda WU	3¾x5 1/8	22.5	L	C	McC	PT	S	Zen	G	Pier	Full	DD	Ber	.....	Full	U	3	Spic	Row	I	Russ	D	8.8	26.6	Ros	34x5*	38x7*	Hoo	Gdy	4000	144
Kimball AB	3675	Wis TAU	4 x6	25.6	L	C	Flex	PT	F	Zen	V	Sim	B-Li	DP	Spl	W	B-Li	A	4	Spic	US	W	Shel	½ Fl	6.5	26	Ros	36x3½	36x7	Smi	Fir	4750	Op
Kleiber BB	.....	Cont K4	4 1/16x5¼	27.2	L	C	Per	C	FS	Strm	G	Sim	.....	WD	Bos	.....	B-Li	A	4	Spic	.....	W	Timk	Flot	7.75	37.51	Ros	36x4	36x7	Smi	.....	5600	153
Lange B	3350	Cont C4	4 1/16x5¼	27.2	L	C	Own	H	S	Strm	G	Pier	M-E	D	Bos	.....	Cott	A	3	M&E	Per	C	Own	D	9.22	46.6	Gem	36x4	36x6	Hoo	Opt	5200	148
Luedinghaus K	2790	Wau RU4R	4¼x5¾	28.9	L	G	Own	PT	FS	Sheb	G	Wau	B.B.	.....	Spl	.....	Det	U	3	Spic	Tut	W	Wis	½ Fl	8.6	26.6	Lav	36x4	36x7	Bim	.....	4400	145
Luedinghaus K-LS	2890	Wau RU4R	4¼x5¾	28.9	L	G	Own	PT	FS	Sheb	G	Wau	B.B.	.....	Spl	.....	Det	U	3	Spic	Tut	W	Wis	.....	8.6	26.6	Lav	36x4	36x7	Bim	.....	4500	170
Maccar H-A	.....	Cont K-4	4¼x5¼	27.2	L	C	Own	Fin	F	Zen	G	Pier	B-Li	DD	Eis	Bos	B-Li	U	4	Spic	Mer	W	Timk	Flot	8.5	45.47	Ros	36x4	36x4†	Day	.....	5300	162
*Mack AB2	3300	Own AB	4¼x5	28.9	L	C	Own	C	S	Zen	G	Own	Own	DD	Spl	.....	Own	U	4	Spic	Mer	C	Own	D	6.99	33.84	Own	36x4	36x4†	.....	.....	5100	Op
*Mack AB2	3750	Own AB	4¼x5	28.9	L	C	Own	C	S	Zen	G	Own	Own	DD	Spl	.....	Own	U	4	Spic	Mer	R	Own	Flot	7.6	36.8	Own	36x4	36x4†	.....	.....	5400	Op
*Master Z	2290	Buda OU	4 1/16x5½	27.2	L	C	Chic	PT	S	Mas	V	McC	Full	DD	Eis	.....	Full	U	3	Spic	Det	W	Own	Flot	Opt	Opt	Ros	34x3½	34x5	Pru	.....	4000	142
Menominee D	2875	Wis TAU	4 x6	25.6	L	C	Own	Fin	FS	Strm	G	Mon	Det	DP	Eis	Opt	Cott	U	4	Spic	Tut	W	Wis	½ Fl	8.6	45.13	Ros	36x4	36x8	Stn	Fir	4870	144
*Moreland EX	2800	Cont K4	4 1/16x5¼	27.3	L	C	Own	C	F	.....	V	.....	Own	DD	Spl	.....	Own	A	4	Ther	US	W	Timk	½ Fl	7	33.88	Ros	36x4	36x5	Smi	.....	4980	150
Nash 3018	2150	Own 4	3¾x5¼	22.5	L	C	.....	.....	F	Strm	G	Sim	B.B.	DP	Eis	AL	.....	A	4	Own	Mat	I	Clark	D	9	39.6	Lav	34x4	34x7	AuW	.....	3850	144
Nash Quad 4017	2750	Buda HU	4 1/16x5½	28.9	L	C	.....	.....	F	Strm	G	Sim	B.B.	DP	Eis	.....	.....	A	4	Spic	Mat	I	Own	D	8.5	42.3	Lav	36x5	36x5	.....	.....	6250	124
*Netco DK	‡3100	Cont K4	4 1/16x5¼	27.2	L	C	E-M	PT	F	Zen	V	.....	B-Li	DP	Eis	.....	B-Li	A	4	Hart	Per	W	Timk	Flot	7.75	41.46	Ros	36x4	36x7	Arc	Gdy	5200	Op
Niles E	3000	Cont C4	4 1/16x5¼	27.2	L	C	Mod	Own	FS	Strm	G	Mon	B.B.	D	Eis	.....	Covt	A	3	Bld	IC	W	Timk	Flot	8.5	28	Gem	36x4	36x7	Hoo	Fir	5800	140
Northway B2	3300	Own	4 x6	25.6	H	C	GO	C	F	Strm	V	Pier	Full	DP	Wag	Bj	Full	A	4	Spic	Per	W	Shel	½ Fl	7.75	37.2	Ros	36x4	36x4†	Cla	Fir	6000	Op
Oneida B	2825	Hin 400	4 x5¼	25.6	L	C	Mod	C	F	Strm	V	Hin	Full	DD	Apo	.....	Full	A	3	Pet	Math	W	Wis	½ Fl	8.25	33	Ros	36x3½	36x6	Pru	.....	5100	144
*Oshkosh AA4	2585	H-Sp7000	3½x5	19.6	L	T	Own	C	FS	Zen	V	Dup	B-Li	DP	NE	NE	B-Li	U	4	Pet	Tut	B	Own	Flot	8.2	33	Ros	36x6*	36x6*	Bim	Fir	4350	165
*Oshkosh A4	2485	H-Sp7000	3½x5	19.6	L	T	Own	C	FS	Zen	V	Dup	B-Li	DP	NE	NE	B-Li	A	4	Pet	Tut	B	Own	Flot	8.2	33	Ros	36x6*	36x6*	Bim	Fir	4200	130
Packard EC	3100	Own	4 1/16x5½	28.1	L	C	.....	Fin	F	Own	P	Own	Own	DP	Spl	Bj	Own	A	4	Spic	.....	W	Own	Flot	7.25	33.3	Own	36x4	36x7	.....	.....	5050	144
Packard EX	3500	Own	4 1/16x5½	28.1	L	C	.....	Fin	F	Own	P	Own	Own	DP	Spl	Bj	Own	A	4	Spi	.....	W	Own	Flot	8	36.7	Own	36x6*	40x8*	.....	.....	5200	144
Patriot Lincoln Special	2175	Hin HAA-400	4 x5¼	25.6	L	C	Own	PT	F	Strm	V	.....	Cont	DD	Spl	.....	Full	A	4	Ther	Mar	W	Dun	½ Fl	7.25	34.43	Ros	34x4	34x6	Bim	Gdy	3900	140
Penn	2700	Buda MU	3 5/16x5½	21	L	C	GO	PT	FS	Zen	G	.....	Full	DP	Bos	Bos	Full	U	3	Spic	Row	W	Wis	½ Fl	9.25	37	Full	34x5	38x7	Smi	Gdy	3975	144
Pierce Arrow X5	3200	Own	4 x5½	25.6	T	C	Own	Fin	F	Strm	F	Own	Own	DD	Del	Opt	Own	A	4	.....	SP	W	Own	½ Fl	9.66	50.2	.....	36x4	36x4†	Day	.....	6400	150
Pittsburgher A	3000	Own	3¾x5	21.2	T	C	GO	Fin	F	Strm	V	.....	B-Li	DP	Bos	.....	B-Li	A	3	Spic	IC	W	Own	.....	8.75	46.8	Ros	36x4	36x7	Smi	.....	5000	152
Rainier R28	2950	Cont K4	4½x5¼	27.2	L	T	EM	Fin	FS	Zen	V	Pier	B-Li	DP	Eis	.....	B-Li	A	3	Spic	SP	W	Shel	.....	8.7	28.83	Ros	34x4	34x6	.....	Fir	3850	156
Ranger TK-20–2	2450	Wis CAU	3¾x5	22.5	L	C	Bus	Fin	F	Zen	G	Sim	Full	PT	Spl	.....	Full	U	4	UP	Stan	W	Tim	½ Fl	9.25	29.97	Dit	36x6*	38x7*	Bim	Fir	3700	136
Rowe CD W2	3300	Wis EAU	4 x5	25.6	L	C	Fed	H	F	Zen	G	Sim	B-Li	DP	Bos	.....	B-Li	U	4	Spic	Shel	W	Shel	½ Fl	7.7	31	Ros	34x4	36x3½†	Hoo	.....	4500	142
Ruggles 40	1795	Her	4 x5	25.6	L	G	Per	C	F	Strm	G	Her	B-Li	DD	Bos	.....	B-Li	U	4	Spic	Det	R	Own	½ Fl	7	37.45	Jac	34x5*	34x7	Nor	Fir	4200	148
Sanford W25	.....	Cont C4	4 1/16x5¼	27.2	L	G	McC	Fin	F	Strm	G	Pier	B.B.	DP	Eis	.....	Own	A	4	Spic	Shel	W	Shel	½ Fl	8.7	34.8	Ros	36x4	36x4†	Hoo	Fir	5330	174
Schacht	3200	Buda ETU	4¼x5½	28.9	L	C	Own	PT	F	Sheb	G	Dup	BB	D	Bos	.....	Own	A	4	M&E	Nat	W	Own	Flot	8.66	41	Own	36x4	36x7	StM	.....	6200	156
Schwartz K	3000	Buda CTU	3¾x5¼	22.5	L	C	Fed	H	F	Strm	G	Mon	Full	DP	Bos	.....	Full	U	4	M-E	Row	W	Shel	½ Fl	7.75	37.2	Ros	34x3½	34x7	Sch	Fir	3990	146

‡Chassis only.

Trade Name and Model	Chassis Price	ENGINE DETAILS: Make and Model Number 4 Cylinder unless otherwise noted	Bore and Stroke	N. A. C. C. Horsepower	Valve Arrange't	How Cooled	Radiator (Make)	Radiator (Type)	Lubrication	Carburetor	Fuel Feed	Governor (Make)	Clutch (Make)	Clutch (Type)	Ignition System	Engine Starter	GEARSET: Make	Location	Speeds	Universal (Make)	Springs (Make)	REAR AXLE: Final Drive	Make	Type	Total Gear Reduction in High	Total Gear Reduction in Low	Steering Gear (Make)	TIRES, WHEELS, RIMS: *Pneumatic †Dual Front	Rear	Wheels (Make)	Rim Equipment	Chassis Weight (Stripped)	Wheelbase
2 Ton—Con'd		1		2	3	4	5	6	7	8	9		10	11	12	13	14	15		16	17	18	19	20			21			22	23		
Service 32	.....	Buda IU	4 x5½	25.6	L	C	McC	Fin	F	Strm	V	.....	B.B.	DP	Eis	.....	B-Li	A	4	Spic	.....	W	Timk	½Fl	7.75	37.5	Ros	36x3½	36x7	Bim	.....	850	150
Service 37	.....	Buda HU	4½x5½	28.9	L	C	McC	Fin	F	Strm	V	.....	B.B.	DP	Eis	.....	B-Li	A	4	M-E	Shel	W	Timk	½Fl	7	33.8	Ros	35x5*	38x7*	Bim	Fir	4900	150
Southern 20	2090	Buda HTU	4½x5½	28.9	L	C	Own	PT	S	Zen	V	Pier	Full	DD	Boe	.....	Full	U	4	.....	Shel	W	Shel	.....	.....	.....	Ros	36x4	40x8	.....	.....	.....	150
Sterling 2	3085	Wau	4x5¾	25.6	L	C	Own	PT	F	Zen	V	Wau	B-Li	DD	Eis	.....	B-Li	U	4	Spic	Mat	W	Timk	Flot	7.7	41.19	Ros	36x4	36x6	Pru	.....	5725	142
Stewart 7	2190	Cont C2	4 1/16x5¼	27.2	L	G	Bus	Fin	FS	Zen	G	Pier	Full	DP	Eis	.....	Full	U	3	Hart	Det	I	Clark	D	9	27	Ros	34x4†	34x8	Cla	Gdy	4460	156
Stoughton D	2490	Her CU3	4 x5½	25.6	L	C	Own	Fin	F	Strm	G	Dup	B-Li	DD	Eis	.....	B-Li	U	4	Ther	Own	W	Shel	½Fl	8.66	35	Ros	36x4	36x7	Roy	Gdy	4600	140
*Superior E	2450	Cont C2	4 1/16x5¼	27.2	L	C	Idl	C	F	Strm	V	Pier	Full	DD	Eis	.....	Full	U	3	Arv	Tut	I	Torb	D	9	23.2	Ros	36x4	36x6	Sch	Fir	3600	144
Titan 2	.....	.....	4 x5½	25.6	L	C	BW	PT	F	Strm	G	Sim	B.B.	DD	Eis	.....	Cott	U	4	Pet	Shel	I	Own	D	8	42	Woh	34x4	36x7†	Bim	.....	4400	156
Traffic 4000C	1595	Cont N4	3¾x5	22.5	L	T	Own	C	FS	Cart	G	.....	Covt	DP	Bos	.....	Covt	U	3	Ther	Det	I	Russ	D	7	25.62	Own	34x3½	34x5	Opt	Fir	3175	132
Transport 35	1885	Cont N	3¾x5	22.5	L	T	.....	.....	FS	Strm	G	Dup	Full	DP	Eis	.....	Full	...	4	Hart	Det	I	Clark	.....	7.6	36.4	Jac	36x3½	36x6	.....	.....	4000	140
Traylor C	2850	Buda ITU	4 x5½	25.6	L	P	GO	Fin	F	Zen	G	Pier	Covt	DD	Spl	.....	Covt	U	3	M-E	Mer	W	Shel	½Fl	7.75	.....	Ros	36x4	36x7	Sch	.....	5100	146
*Triangle C	2285	Wau BUX	3¾x5¼	22.5	L	C	Per	ZZT	FS	Strm	G	Wau	Full	DD	Eis	.....	Full	U	3	UP	Det	I	Clark	D	9.1	36	Gem	36x4	36x7	Roy	Fir	4200	147
Triumph 2	2550	Buda CTU	3¾x5¼	22.5	L	C	Mod	PT	F	Kng	V	Pier	B.B.	D	Spl	.....	Cott	U	4	UP	Tut	W	Wis	½Fl	7.75	40.3	Lav	36x4	36x7	Stn	Stn	5000	144
Twin City	2750	Buda ITU	4 x5½	25.6	L	C	Spli	H	F	Sheb	V	Sim	Full	D	Bos	.....	Full	U	3	Arv	Math	I	Clark	D	8	32	Ros	36x6	40x8	Bim	Fir	4800	150
Ultimate AJ	3200	Buda HTU	4½x5½	28.9	L	C	Own	PT	F	Strm	G	Pier	B-Li	DD	Eis	Bos	B-Li	U	4	Spic	Shel	W	Shel	½Fl	6.5	34.7	Ros	35x5*	38x7*	Jon	Fir	4500	140
Ultimate AJL	3250	Buda HTU	4½x5½	28.9	L	C	Own	PT	F	Strm	G	Pier	B-Li	DD	Eis	Bos	B-Li	U	4	Spic	Shel	W	Shel	½Fl	6.5	34.7	Ros	35x5*	38x7*	Jon	Fir	4590	156
Vim 22	3150	Her C2	3¾x5½	22.5	L	C	McC	Fin	F	Zen	G	Dup	B-Li	D	Spl	.....	B-Li	U	4	Spic	Shel	W	Shel	.....	7.75	.....	Gem	36x4	36x6	Smi	....	4700	142
*Walker-Johnson A	2500	Buda WU	3¾x5½	22.5	L	P	TC	Bus	Fin	F	Zen	V	.....	Full	DD	Eis	.....	Full	U	3	Spic	SP	W	Timk	½Fl	7.75	.....	Ros	34x3½	34x6	Jon	.....	4150	140
Walter N	3500	Own FU	4 x5¼	25.6	L	C	Bus	PT	F	Strm	G	Wau	B-Li	D	Eis	W	B-Li	A	4	Own	.....	...	Own	Flot	7.25	36	Gem	36x4	36x7	.....	.....	5500	144
White 20	3250	Own	3¾x5½	22.5	L	C	.....	C	FS	Own	G	.....	Own	D	.....	.....	Own	A	4	Own	.....	R	Own	½Fl	.....	.....	Own	36x4	36x7	.....	.....	4500	157
Wichita M	2400	Wau BX	3¾x5¼	22.5	L	G	.....	PT	F	Strm	G	Wau	Own	C	Wag	.....	B-Li	A	4	Own	Det	W	Shel	½Fl	8.6	45.03	Ros	36x3½	36x6	Bim	Fir	4400	144
Wisconsin (Loganville)	1450	HSp 7000	3½x5	19.6	L	T	.....	.....	FS	Strm	V	.....	B.B.	WP	Bos	Dy	Det	U	3	UP	Har	I	Torb	D	8	.....	Lav	34x5*	36x6*	.....	.....	3200	136
*Witt Will P	2900	Cont C4	4 1/16x5¼	27.2	H	G	Mod	Opt	FS	Zen	G	Pier	B-Li	DD	Eis	.....	B-Li	U	3	Spic	Del	W	Tim	Flot	7.75	.....	Ros	36x4	36x8	Arc	Fir	5000	144
Wolverine J2	2245	Cont J4	3¾x5	22.5	L	G	Lng	Fin	F	Strm	G	Phar	Full	DD	Dix	AL	Full	U	3	UP	Am	I	Russ	D	8.8	35.2	Gem	34x4	34x7	Hay	Gdy	4300	148
2½ Ton																																	
Ace 2½	.....	Buda HU	4¼x5½	28.9	L	C	Mod	ZZT	F	Zen	V	Pier	Full	DP	Eis	W	Full	A	4	UM	Math	W	Timk	Flot	8.50	34	Ros	36x4	36.7	Day	Fir	5630	156
Acme 60	.....	Cont K4	4 1/16x5¼	27.2	L	C	GO	Fin	F	Rayf	V	Dup	B.B.	DP	Eis	DI	Cott	U	4	Bld	Det	W	Timk	Flot	9.25	48.10	Ros	36x4	36x7	Bim	.....	4830	152
American	3350	Wis	4 x6	25.6	L	C	GO	Fin	F	Strm	G	Own	Det	D	Apo	.....	Cott	U	4	Acm	SP	W	Thom	Flot	8.33	.....	Ros	36x4	34x4†	.....	.....	5000	158
Apex E	2695	Buda HU	4¼x5½	28.9	L	C	GO	C	F	Strm	V	Dup	Full	D	Eis	Op	Full	U	3	Bld	Det	I	Torb	D	9	27	Lav	36x4	36x6	Roy	Fir	4500	150
Armleder HWB	3200	Buda HTU	4¼x5½	28.9	L	P	Lng	Fin	F	Zen	G	Phar	B-Li	DD	Bos	W	B-Li	U	4	Spic	Math	W	Timk	Flot	9.25	49.5	Ros	36x4	36x7	St M	.....	4900	148
Armleder HWC	3200	Cont C4	4 1/16x5¼	27.2	L	P	Lng	Fin	S	Zen	G	Phar	B-Li	DD	Bos	W	B-Li	U	4	Spic	Math	W	Timk	Flot	9.25	49.5	Ros	36x4	36x7	StM	.....	4900	148
Atco A	.....	Bud HU	4¼x5½	28.9	L	C	Chic	PT	F	Strm	G	Pier	Full	D	Eis	.....	Full	A	4	Hart	Shel	W	Wis	.....	8.7	41.6	Ros	36x4	36x7	Smi	.....	4900	150
Atterbury 22C Std	3375	Cont K4	4 1/16x5¼	27.2	L	C	Own	Fin	F	Zen	V	Pier	B-Li	DD	Eis	.....	B-Li	A	4	Spic	SP	W	Timk	Flot	9.25	49.48	Gem	36x4	36x4	Arc	Fir	5670	156
Atterbury 22C LWB	3475	Cont K4	4 1/16x5¼	27.2	L	C	Own	Fin	F	Zen	V	Pier	B-Li	DD	Eis	.....	B-Li	A	4	Spic	SP	W	Timk	Flot	9.25	49.48	Gem	36x4	36x4	Arc	Fir	5830	180
Available 2½	3160	Her CU3	4 x5½	25.6	L	C	Chic	Fin	FS	Strm	V	Pier	B-Li	DD	Bos	.....	B-Li	A	4	M-E	Tut	W	Timk	Flot	7.75	40.3	Ros	36x4	36x8	Sch	.....	4750	152
Bell O	2550	Buda	4¼x5½	28.9	L	C	Chic	PT	F	Strm	V	Dup	B.B.	DP	Eis	.....	Det	U	3	UP	Det	I	Russ	D	8	38.4	Gem	34x4	34x7	Bim	Fir	4200	146
Bessemer J2	2990	Cont C2	4 1/16x5¼	27.2	L	C	Stan	C	FS	Strm	G	Pier	B.B.	DP	Bos	.....	B-Li	A	4	Arv	Per	R	LM	½Fl	.....	.....	Ros	36x4	36x4†	Sch	Fir	4800	158
Bridgeport 2½B	2975	Buda HTU	4¼x5½	28.9	L	C	Own	Fin	FS	Strm	G	Pier	B.B.	D	Eis	.....	B-Li	A	4	Hart	Per	W	Timk	Flot	8.25	.....	Ros	36x4	36x4†	Jon	Fir	5500	156
*Brinton D	.....	Cont C4	4 1/16x5¼	27.2	L	C	Chic	PT	F	Strm	G	Pier	B-Li	D	Bos	.....	B-Li	U	3	Spic	Tut	W	Timk	Flot	.....	33.6	Ros	36x4	36x8	Smi	.....	4900	150
Brockway K5	.....	Cont K4	4 1/16x5¼	27.2	L	C	Bus	Fin	F	Strm	V	Phar	B-Li	DD	Eis	.....	B-Li	A	4	Spic	Mer	W	Timk	Flot	7.75	41.5	Gem	36x4	36x8	Hoo	.....	5260	153
*Chicago C2½	.....	Her O	4 x5	25.6	L	C	Brm	PT	F	Strm	G	Sim	B-Li	D	Bos	.....	B-Li	U	4	Pet	Math	W	Timk	Flot	7.75	34	Gem	36x4	36x7†	Opt	Stn	5200	156
*Clydesdale 65EX	3450	Cont L	4 1/16x5¼	32.4	L	C	Own	PT	F	Zen	G	Own	B-Li	DD	Bos	.....	B-Li	A	4	Spic	Stan	W	Timk	Flot	8.5	45.5	Ross	36x4	36x4†	.....	.....	5400	163
*Clydesdale 65 X	3250	Cont K	4 1/16x5¼	27.2	L	C	Own	PT	F	Zen	G	Own	B-Li	DD	Bos	.....	B-Li	A	4	Spic	Stan	W	Timk	Flot	8.5	45.5	Ros	36x4	36x4†.	.....	.....	5140	163
Collier 22	.....	Cont C4	4 1/16x5¼	27.2	T	P	Lng	PT	FS	Zen	V	Pier	Full	DP	Eis	.....	Full	U	4	UP	Math	W	Timk	Flot	8.5	40.8	Ros	36x4	36x4†	Bim	Fir	5445	165
Commerce 25B	2770	Cont K4	4 1/16x5¼	27.2	L	P	Lng	Fin	F	Zen	V	.....	B-Li	DP	Eis	Bj	B-Li	A	4	Spic	Am	W	Tim	Flot	7.75	41.46	Ros	36x6	40x8	Bim	Fir	5200	156
Concord B	3600	Buda HTU	4¼x5½	28.9	L	C	Bus	PT	F	Zen	G	Mon	B-Li	DP	Eis	.....	B-Li	U	4	Spic	Per	W	Timk	Flot	9.25	37	Ros	36x4	36x8	Arc	Fir	5450	150
Corbitt B-22	3000	Cont C4	4 1/16x5¼	27.2	L	C	McC	Fin	FS	Strm	V	Sim	B-Li	DD	Eis	.....	B-Li	U	4	Hart	Shel	W	Shel	½Fl	8.75	35	Ros	36x4	36x7	Bim	Fir	5325	152
Dart M	.....	Buda HU	4¼x5½	28.9	L	C	Own	C	F	Zen	G	Pier	Full	DD	Eis	.....	Full	U	4	Spic	Per	W	Own	.....	8.5	40.8	Ros	36x4	36x7	Pru	.....	4800	150
Day Elder C	2750	Buda HTU	4¼x5½	28.9	L	C	Bus	Fin	F	Zen	G	Mon	Covt	DD	Eis	.....	Covt	U	4	Hart	IC	W	Shel	½Fl	8.75	41.56	Gem	36x4	36x7	Jon	Fir	4600	150
Dependable D	2650	Buda ITU	4 x5½	25.6	L	C	Lng	Fin	F	Zen	V	Mon	Full	DD	Spl	AL	Full	U	3	Acm	Per	W	Wis	½Fl	8.5	35.75	Ros	36x4	36x7	Bim	Fir	5300	144
Diamond T-U	2650	Hin	4 x5¼	25.6	L	C	GO	Fin	F	Strm	V	Own	Covt	DD	Bos	.....	Covt	U	4	Spic	Math	W	Timk	Flot	7.8	36.81	Gem	36x4	36x7	.....	.....	4800	160
D-Olt C	3250	Midwest	4 1/16x5¼	27.2	H	C	GO	PT	F	Zen	G	Dup	B-Li	DD	Bos	.....	B-Li	U	3	Spic	SP	W	Timk	.....	8.5	.....	Ros	36x5	36x4†	.....	.....	5350	168
Erie A2½	.....	Buda ETU	4¼x5½	28.9	L	C	Fed	C	FS	Zen	G	Dup	Full	D	Bos	.....	Full	A	4	Spic	Per	W	Shel	½Fl	8.7	41.7	Ros	36x4	36x4†	Bim	Fir	5760	150
Facto	2295	Buda ETU	4¼x5½	28.9	L	C	Bus	PT	FS	Zen	V	Pier	Full	D	Spl	.....	Full	A	4	Spic	SP	W	Timk	Flot	7.75	33.9	Ros	36x4	36x8	Smi	Fir	5800	155
*Garford 70 H	2750	Buda HTU	4¼x5½	28.9	L	C	Own	Fin	F	Strm	G	Sim	.....	DD	Spl	.....	Own	A	4	Spic	Per	W	Timk	Flot	7.75	.....	Ros	36x4	36x8	.....	.....	5300	144
*Gary J	2850	Buda HTU	4¼x5½	28.9	L	C	Chic	Fin	FS	Mas	G	McC	Full	DD	Eis	.....	Full	U	4	Spic	Math	W	Timk	Flot	8.5	41	Ros	36x4	36x8	Pru	Gdy	4850	148
Gersix K	3500	Buda HTU	4¼x5½	28.9	L	C	Idl	C	F	Strm	V	Mon	B.B.	....	Bos	.....	Cott	U	3	Bld	Tut	W	Own	.....	9.6	39	Ros	36x4	36x8	Jon	.....	5270	150
Giant 16	3150	Cont C4	4 1/16x5¼	27.2	L	P	Own	.....	FS	Sheb	G	Mon	B-Li	DD	Eis	.....	B-Li	U	3	Spic	Math	W	Timk	Flot	8.8	29.09	Ros	36x4	36x7	Way	.....	4500	168
Giant 16	3050	Cont C4	4 1/16x5¼	27.2	L	P	Own	.....	FS	Sheb	G	Mon	B-Li	DD	Eis	.....	B-Li	U	3	Spic	Math	W	Timk	Flot	8.8	29.9	Ros	36x4	36x7	Way	.....	4500	144
Hall 2½ Worm	.....	Cont C4	4 1/16x5¼	27.2	L	C	Own	H	FS	Zen	G	Dup	B-Li	DP	Bos	.....	B-Li	U	3	Opt	Det	W	Timk	Flot	7.7	.....	Gem	36x4	36x4	Smi	.....	4525	156
*Harvey WFA	2950	Buda ETU	4¼x5½	28.9	L	C	Own	Fin	F	Strm	G	McC	Full	DD	Spl	.....	B-Li	A	4	Spic	Shel	W	Shel	½Fl	7.75	37.5	Ros	36x4	36x7	St M	.....	5600	160
Hendrickson N	2690	Buda ETU	4¼x5½	28.9	L	C	Chic	PT	F	Strm	G	McC	Full	D	Spl	.....	Full	A	4	Ther	Tut	W	Timk	Flot	7.7	37.2	Ros	36x4	36x7	Stn	.....	.....	Op
H. R. L., H	3650	Hink HAA	4 x5¼	25.6	L	C	Fed	Fin	F	Zen	V	Hink	B-Li	DP	Bos	GD	B-Li	U	4	Spic	Shel	W	Shel	.....	8.75	30.	Ros	36x4	36x4†	Sch	Gdy	5310	154
Hurlburt BB	2800	Buda HU	4¼x5½	28.9	L	C	Own	Fin	F	Zen	G	Sim	B-Li	DD	Eis	.....	B-Li	U	3	Spic	Per	W	Own	.....	7.5	.....	Ros	36x4	36x4†	Way	.....	5000	148
Huron-Michigan	2790	Buda ETU	4¼x5½	28.9	L	C	.....	Fin	F	Zen	V	Pier	B.B.	D	Bos	.....	Cott	U	4	Det	Det	I	Clark	D	8	41.6	Jac	36x6*	40x8*	AuW	Fir	.....	156
Independent HI (Iowa)	2940	Cont K4	4 1/16x5¼	27.2	L	C	Chic	PT	FS	Strm	V	.....	Full	DD	Bos	.....	Full	U	4	Bld	Tut	I	Russ	D	10	.....	Lav	36x4	36x7	St M	Fir	4950	156
Indiana 25	.....	Own 38	4 1/16x5½	27.2	L	C	McC	Fin	F	Strm	G	Pier	B.B.	DP	Eis	.....	B-Li	A	4	Spic	Shel	W	Shel	½Fl	7.75	41.3	Woh	36x4	36x8	Day	.....	5850	156
International 52-Bus	3200	Own	4¼x5	28.9	H	T	Own	Fin	FS	Ens	V	Pier	Own	Own	DP	Spl	Own	Own	A	4	Own	.....	I	Own	D	4.85	28.8	Own	.....	.....	Own	.....	.....	190
Kalamazoo HD	3350	Wis UAU	4¼x6	28.9	L	P	GO	PT	F	Strm	V	Pier	Full	D	Bos	Dy	Full	A	4	B.B.	Shel	W	Shel	½Fl	9.5	57	Ros	36x5	36x10	Smi	.....	6720	144
Kalamazoo NH	3145	Wis TAU	4 x6	25.6	L	P	GO	PT	F	Strm	V	Pier	Full	D	Bos	Dy	Full	A	4	B.B.	Shel	W	Shel	½Fl	8.75	42.8	Ros	36x5	36x10	Smi	.....	6400	160
*Kelly Springfield K35	2900	Own	3¾x5¼	22.5	L	C	Lng	Fin	F	Zen	G	Pier	Own	C	Eis	W	Covt	A	3	.....	Per	C	Own	D	10.6	35.11	Gem	36x4	36x4†	St M	.....	4850	Op
*Kelly Springfield K38	2900	Own	3¾x5¼	22.5	L	C	Lng	Fin	F	Zen	G	Pier	Own	C	Eis	W	Covt	A	4	Pet	Per	W	Own	½Fl	10.3	34.2	Gem	36x4	36x4†	St M	.....	5300	Op
Kimball AC	3975	Wis UAU	4¼x6	28.9	L	C	Flex	PT	F	Zen	V	Pier	B-Li	DP	Spl	W	B-Li	A	4	Spic	US	W	Shel	½Fl	7.75	37.31	Ros	36x4	36x8	Smi	Fir	5000	Op
Kissel Freighter	2875	Own 50000*	4¼x5½	28.9	L	C	McC	PT	S	Strm	V	Pier	W-Gr	DP	Eis	.....	W-Gr	A	4	Spic	Mat	W	Timk	Flot	6.5	42.6	Jac	36x4	36x7	Pru	.....	5100	198

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Trade Name and Model	Chassis Price	ENGINE DETAILS: Make and Model Number 4 Cylinder unless otherwise noted	Bore and Stroke	N. A. C. C. Horsepower	Valve Arrange't	How Cooled	Radiator (Make)	Radiator (Type)	Lubrication	Carburetor	Fuel Feed	Governor (Make)	Clutch (Make)	Clutch (Type)	Ignition System	Engine Starter	GEARSET: Make	Location	Speeds	Universal (Make)	Springs (Make)	REAR AXLE: Final Drive	Make	Type	Total Gear Reduction in High	Total Gear Reduction in Low	Steering Gear (Make)	TIRES, WHEELS, RIMS: *Pneumatic †Dual Front	Rear	Wheels (Make)	Rim Equipment	Chassis Weight (Stripped)	Wheelbase
3 Ton—Con'd		1		2	3	4	5	6	7	8	9	10	11	12	13	14	15	*	16	17	18	19	20			21			22	23		
Traylor D	3300	Buda HTU	4½x5½	28.9	L	P	GO	Fin	F	Zen	G	Pier	M-E	DD	Spl	.....	Own	...	4	M-E	Mer	W	Shel	½Fl	7.7	.....	Ros	36x4	36x8	Sch	.....	5850	150
Ultimate BL	3800	Buda HTU	4¼x5½	28.9	L	C	Own	PT	F	Strm	G	Pier	B-Li	DD	Eis	Bos	B-Li	U	4	Spic	Shel	W	Shel	½Fl	7.75	30.2	Ros	36x4	36x8	Jon	Fir	5590	178
U. S., R	.....	Own	4 x5¼	25.6	L	C	Lng	Fin	F	Strm	V	Own	B-Li	DD	Eis	Op	B-Li	A	4	Opt	Shel	W	Shel	½Fl	8.7	41.5	Lav	36x4	36x4†	Sch	.....	5500	156
Vim 23	3950	Her M2	4¼x5½	28.9	L	P	McC	Fin	F	Zen	G	Dup	B-Li	D	Spl	.....	B-Li	A	4	Spic	Shel	W	Shel	.....	7.75	.....	Gem	36x5	36x5†	Smi	.....	6370	175
Wichita RX	3200	Wau CU	4⅜x5¼	30.6	L	G	.....	PT	F	Strm	G	Wau	Own	C	Wag	.....	B-Li	A	1	Own	Det	W	Shel	½Fl	8.75	45.5	Ros	36x4	36x8	Smi	Fir	5900	160
Winther 51	.....	Wis TAU	4 x6	25.6	L	P	Brm	PT	F	Mas	V	.....	BB	DP	Eis	W	B-Li	A	4	Bld	Matl	I	Clark	D	8	40	Ros	36x4	36x4†	Own	.....	5300	150
Wolverine K3	2910	Cont K	4½x5¼	27.2	L	G	Lng	Fin	F	Strm	G	Phar	Full	DD	Spl	AL	Full	U	4	UP	Am	I	Russ	D	9.4	45	Ros	36x4	36x8	Cla	Gdy	5600	168
3½ Ton																																	
Apex F	3975	Buda YTU	4½x6	32.4	L	C	GO	C	F	Strm	V	Dup	Full	D	Eis	Opt	Full	A	4	Bld	Det	I	Torb	D	10.5	.....	Wob	36x5	36x10	Roy	Fir	6940	168
*Armleder KWB	4150	Buda YTU	4½x6	32.4	L	P	Own	Fin	F	Zen	G	Phar	B-Li	DD	Bos	.....	B-Li	U	4	Spic	Matl	W	Timk	Flot	10.33	55.25	Ros	36x5	36x5†	StM	.....	6900	156
*Armleder K WC	4150	Cont E4	4½x5½	32.4	L	P	Own	Fin	S	Zen	G	Phar	B-Li	DD	Bos	.....	B-Li	A	4	Spic	Matl	W	Timk	Flot	10.33	55.25	Ros	36x5	36x5†	StM	.....	6900	156
Atterbury 22DX Short	4375	Cont L4	4½x5½	32.4	L	C	Own	Fin	F	Zen	V	Pier	B-Li	DD	Eis	.....	B-Li	A	4	Spic	SP	W	Timk	Flot	10.33	55.26	Gem	36x5	40x5†	Arc	.....	7180	150
Atterbury 22D Std	4275	Cont L4	4½x5½	32.4	L	C	Own	Fin	F	Zen	V	Pier	B-Li	DD	Eis	.....	B-Li	A	4	Spic	SP	W	Timk	Flot	10.33	55.26	Gem	36x5	40x5†	Arc	.....	7500	174
Atterbury 22D LWB	4375	Cont L4	4½x5½	32.4	L	C	Own	Fin	F	Zen	V	Pier	B-Li	DD	Eis	.....	B-Li	A	4	Spic	SP	W	Timk	Flot	10.33	55.26	Gem	36x5	40x5†	Arc	.....	7820	198
*Autocar Y	3950	Own Y	4¼x5½	28.9	L	C	Own	Fin	S	Strm	G	....	Own	DP	.	....	Own	A	4	.....	.....	R	Own	Flot	8.7	52.2	Ros	34x5	36x10	Hoo	.....	7200	120
Available H3½	4175	Her MU3	4½x5½	32	4	L	Chic	Fin	FS	Strm	V	Pier	B-Li	DD	Ros	....	B-Li	A	4	M-E	Tut	W	Timk	Flot	10.33	49.99	Ros	36x5	40x5†	Sch	.....	6500	176
Bridgeport 4C	3990	Buda YTU	4½x6	32.4	L	G	Own	Fin	FS	Strm	G	Phar	B.B.	D	Eis	.....	B-Li	A	4	Hart	Per	W	Eat	....	9.25	.....	Ros	36x5	36x10	Jon	Fir	10500	170
Brockway R-4	.....	Cont L4	4½x5½	32.4	L	C	Bus	Fin	F	Strm	V	Phar	B-Li	DD	Eis	.....	B-Li	A	4	Spic	Mer	W	Timk	Flot	8.75	46.8	Gem	36x5	36x5†	Smi	.....	6800	164
Chicago C3½	.....	Her MU3	4½x5½	32.4	L	C	Brm	PT	FS	Strm	G	Sim	B-Li	D	Bos	.....	B-Li	A	4	Pet	Matl	W	Timk	Flot	9.33	50	Gem	36x5	36x10	Opt	Sta	7200	168
*Clydesdale 90	4100	Cont L	4½x5½	32.4	L	C	Own	PT	F	Zen	G	Own	B-Li	DD	Bos	.....	B-Li	A	4	Spic	Stan	W	Timk	Flot	10.33	55.2	Ros	36x5	40x5†	.....	.....	7000	170
Dart W	.....	Buda YTU	4½x6	32.4	L	C	Own	C	F	Zen	G	Pier	Full	DD	Eis	.....	Full	A	4	Spic	Per	W	Own	....	8.7	52.5	Ros	36x5	36x10	Pru	.....	6740	160
Day Elder F	3150	Cont E4	4½x5½	32.4	L	C	Bus	Fin	FS	Zen	G	Mon	B-Li	DD	Eis	....	B-Li	U	4	Hart	IC	W	Shel	½Fl	10.25	41	Gem	36x5	36x5†	Jon	Fir	5600	165
Dependable G 3½	3550	Buda YTU	4½x6	32.4	L	C	Lng	Fin	F	Zen	V	Mon	Full	DD	Spl	AL	Full	A	4	Acm	Per	W	Wis	½-Fl	10	47.61	Ros	36x6	36x10	Bim	Fir	6000	165
Diamond T-K	3750	Hin	4¼x5½	28.9	L	C	GO	Fin	F	Strm	V	Own	Covt	DD	Bos	.....	Covt	A	4	Spic	Matl	W	Timk	Flot	8.8	44.36	Gem	36x5	36x5†	.....	.....	7250	170
Dixon	4070	Cont E4	4½x5½	32.4	L	C	GO	PT	FS	Zen	G	Pier	Full	.....	Apo	.....	Full	U	4	Hart	IC	W	Timk	Flot	Opt	Opt	Ros	36x5	36x10	Smi	.....	6650	160
*Dorris K7	4400	Own	4¼x5½	28.9	H	C	McC	Fin	F	Strm	G	Own	Own	DP	Bos	W	W-Gr	A	4	Spic	Row	W	Timk	Flot	10.33	51.5	Ros	36x5	36x10	Smi	Fir	6750	194
Duplex E	3500	Buda TU	4¼x5½	28.9	H	C	Lng	ZZT	FS	Sheb	V	Dup	B-Li	DD	Eis	....	B-Li	U	4	Pet	Tut	I	Own	D	8	64	Wob	36x8	36x8	Pru	.....	6075	130
Federal WE	3150	Cont E4	4½x5½	32.4	L	C	Own	Fin	FS	Zen	G	Phar	B.B.	DP	Eis	...	WC	A	4	Spic	Matl	W	Timk	Flot	10.33	51.56	Gem	36x5	36x5†	Smi	Fir	6990	156
*Gary KT	3790	Buda YTU	4½x6	32.4	L	C	Chic	Fin	F	Mas	G	McC	B-Li	DD	Eis	.....	B-Li	A	4	Spic	Matl	W	Timk	Flot	10.33	50	Ros	36x5	40x5	Pru	.....	7000	162
Giant 17	4150	Cont E4	4½x5½	32.4	L	P	Own	.....	B	Strm	G	Mon	....	DD	Eis	.....	B-Li	A	4	Spic	Shel	W	Timk	Flot	10.25	49.61	Ros	36x5	36x5†	Way	.....	6800	176
G. M. C. K-71A	3600	Own	4½x6	32.4	L	B	Own	Fin	F	Mar	G	Own	Own	DD	Eis	Opt	Own	A	7	Own	Det	W	Timk	Flot	8.75	75.2	Own	36x5	40x5†	Own	.....	7714	163
G.M.C. K-71B	3700	Own	4½x6	32.4	L	B	Own	Fin	F	Mar	G	Own	Own	DD	Eis	Opt	Own	A	7	Own	Det	W	Timk	Flot	8.75	75.2	Own	36x5	40x5	Own	.....	7820	187
G.M.C. K-71T	3700	Own	4½x6	32.4	L	B	Own	Fin	F	Mar	G	Own	Own	DD	Eis	Opt	Own	A	7	Own	Det	W	Timk	Flot	10.33	88.83	Own	36x5	40x12	Own	.....	7987	438
Gramm-Pioneer 75P	4225	Hink HA200	4½x5½	32.4	L	C	Own	Fin	F	Strm	V	Hink	Own	DD	Eis	NE	Own	A	4	Own	Per	W	Shel	½Fl	9.5	45	Ros	36x6*	42x9*	Smi	.....	6000	150
Hal-Fur B	3000	Hin HA-500	4¼x5½	28.9	L	G	GO	PT	F	Strm	V	Hin	B.B.	P	Bos	W	Own	A	4	Pet	Per	W	Timk	Flot	7.75	57.4	Gem	36x6	Opt	Smi	Fir	5000	Op
Hal-Fur F	4000	Hin AA 1600	4½x5½	32.4	H	C	GO	PT	F	Strm	V	Hin	B.B.	DP	Bos	W	Own	A	4	Pet	Mer	W	Timk	Flot	10.33	72	Gem	36x5	40x10	.....	.....	6500	180
Hall 3½ Worm	.....	Cont E4	4½x5½	32.4	L	T	Own	PT	FS	Zen	G	Dup	B-Li	DP	Bos	.....	B-Li	A	4	Opt	Det	W	Timk	Flot	10	.....	Gem	36x5	36x5†	Smi	.....	6525	144
*Harvey WHA	3950	Buda YTU	4½x6	32.4	L	C	Own	Fin	F	Strm	G	McC	Full	DD	Spl	.....	B-Li	A	4	Spic	Shel	W	Shel	½Fl	8.75	46.8	Ros	36x5	36x5†	StM	.....	7600	160
Hendrickson M	3000	Buda ETU	4¼x5½	28.9	L	C	Chic	PT	F	Strm	G	McC	Full	DD	Spl	.....	Full	A	4	Ther	Tut	W	Timk	Flot	10	49.6	Ros	36x5	36x5..	Stn	.....	.....	Op
*Hurlburt CC	3475	Buda HU	4¼x5½	28.9	L	C	Own	Fin	FS	Zen	G	Sim	B-Li	D	Eis	.....	B-Li	A	4	Spic	Per	W	Own	Flot	8.7	41.91	Ros	36x5	36x5†	Way	.....	7000	170
Indiana 35	.....	Own 40	4⅝x5½	30.6	L	C	McC	Fin	F	Strm	G	Pier	B.B.	DP	Eis	.....	B-Li	A	4	Spic	Shel	W	Shel	½Fl	10.2	54.84	Wob	36x5	36x10	Smi	.....	7050	160
Jackson B	3850	Cont E4	4½x5½	32.4	L	G	Lng	Fin	FS	Strm	V	Pier	B.B.	DP	Eis	Dy	Own	A	4	Spic	Per	B	Own	Flot	9.2	43.49	Ros	36x7	36x7	.....	.....	7400	150
Kalamazoo SK	3845	Wis UAU	4¼x6	28.9	L	P	GO	PT	F	Strm	V	Pier	Full	D	Bos	Dy	Full	A	4	B.B.	Shel	W	Shel	½Fl	10.25	61.5	Ros	36x5	36x12	Smi	.....	7520	160
*Kelly-Springfield K-40	3900	Own	4½x6½	32.4	T	C	Lng	Fin	F	Zen	G	Pier	B&B	D	Eis	W	Covt	A	3	.....	Per	C	Own	D	10.49	31.69	Gem	36x5	40x5†	StM	.....	7730	Op
*Kelly-Springfield K-41	3900	Own	4½x6½	32.4	T	C	Lng	Fin	F	Zen	G	Pier	B.B.	D	Eis	W	Covt	A	4	Pet	Per	I	Clark	D	10	50.7	Gem	36x6	36x10	Cla	.....	7800	Op
Kelly-Springfield K-42	3900	Own	4½x6½	32.4	T	C	Lng	Fin	F	Zen	G	Pier	B.B.	D	Eis	W	Covt	A	4	Pet	Per	W	Eat	½Fl	10.25	51.97	Gem	36x5	40x5†	Smi	.....	8500	Op
Kleiber C	.....	Cont L4	4½x5½	32.4	L	C	RT	PT	FS	Strm	G	Sim	....	DD	Bos	.....	B-Li	A	4	Spic	.....	W	Timk	Flot	8.75	42.35	Ros	36x5	36x10	Smi	.....	7200	163
Koehler F	4470	Her	4½x5½	32.4	L	C	Own	PT	F	Zen	G	Pier	B-Li	DD	Spl	.....	B-Li	A	4	Spic	Math	W	Timk	Flot	10.33	.....	Lav	36x5	36x10	Day	.....	7000	162
Larrabee L4	.....	Cont L4	4½x5½	32.4	L	C	R-T	PT	S	Zen	G	Phar	B-Li	DD	Bos	.....	B-Li	A	4	Spic	Mer	W	Shel	½Fl	10.25	55	Ros	36x5	36x10	Smi	.....	7600	186
*Mack AC 3½	4950	Own AC	5 x6	40	L	C	Own	Fin	S	Zen	G	Own	Own	DP	Spl	.....	Own	UJ	4	Spic	Mer	C	Own	D	7.54	48.37	Own	36x5	40x5†	.....	.....	8070	Op
*Master A	3990	Buda YTU	4½x6	32.4	L	C	Chic	PT	F	Mas	V	Pier	B-Li	DD	Eis	.....	B-Li	A	4	Spic	Det	W	Timk	Flot	Opt	Opt	Ros	36x5	40x5†	Smi	.....	8000	158
*Master AL	4090	Buda YTU	4½x6	32.4	L	C	Chic	PT	F	Mas	V	Pier	B-Li	DD	Eis	.....	B-Li	A	4	Spic	Det	W	Timk	Flot	Opt	Opt	Ros	36x5	40x5†	Smi	.....	8200	194
*Master E	4290	Buda YTU	4½x6	32.4	L	C	Chic	PT	F	Mas	V	Pier	B-Li	DD	Eis	.....	B-Li	A	4	Spic	Det	R	Walk	Flot	Opt	Opt	Ros	36x5	40x5†	Wal	.....	8000	158
*Master EL	4390	Buda YTU	4½x6	32.4	L	C	Chic	PT	F	Mas	V	Pier	B-Li	DD	Eis	.....	B-Li	A	4	Spic	Det	R	Walk	Flot	Opt	Opt	Ros	36x5	40x5†	Wal	.....	8200	194
Menominee G	3800	Wis VAU	4½x6	32.4	L	C	Own	Fin	FS	Strm	G	Mon	Det	DP	Eis	Opt	Cott	A	4	Spic	Tut	W	Timk	Flot	10.3	53.71	Ros	36x5	36x10	Smi	Fir	6750	160
Nelson & LeMoon G 4	.....	Cont L4	4½x5½	32.4	L	C	Chic	Fin	F	Strm	G	Phar	B-Li	DD	Bos	W	B-Li	U	4	Own	Tut	W	Timk	Flot	8.7	42	Ros	36x5	36x5†	Pru	Gdy	6000	Op
Noble E-71	3800	Buda YTU	4½x6	32.4	L	C	Chic	Fin	F	Strm	V	Pier	Full	DP	Eis	W	War	A	4	ME	.....	W	Shel	½Fl	8.75	44	Lav	36x53	6x10	Bim	Fir	7200	182
Northway B3	4200	Own	4 x6	25.6	H	C	GO	C	F	Strm	V	Pier	Full	DP	Wag	Bj	Full	U	4	Spic	Per	W	Shel	½Fl	10	49.2	Ros	36x5	40x5†	Cla	Fir	7700	Op
Ogden F 3½	.....	Cont L4	4½x5½	32.4	L	G	Chic	Fin	F	Strm	G	Pier	B-Li	DD	Spl	.....	B-Li	A	4	M-E	Tut	W	Timk	Flot	10.33	.....	Ros	36x5	40x10	Stn	.....	7300	178
O.K. 3½ T	3975	Buda YTU	4½x6	32.4	L	G	RT	PT	FS	Zen	V	Pier	Full	DD	Eis	.....	Full	A	4	Hart	Cham	W	Wis	½Fl	10	60	Ros	36x5*	36x5†	Bim	.....	6350	164
Old Reliable C	4250	Wis VAU	4½x6	32.4	L	C	Chic	PT	F	Strm	V	Mon	Full	DD	Bos	.....	Full	A	4	Pet	Shel	W	Shel	½Fl	8.75	52.5	Ros	36x5	36x5†	StM	.....	6650	168
Oneida D	4050	Hin 200	4½x5½	33.5	L	C	Mod	C	F	Strm	V	Hin	Full	DD	Apo	.....	Full	A	4	Spic	Math	W	Timk	Flot	10.33	49.6	Ros	36x5	36x10	Smi	.....	7700	170
Packard ED	4100	Own	4½x5½	32.4	L	C	...	Fin	F	Own	P	Own	Own	DP	Spl	Bj	Own	A	4	Spic	.....	W	Own	Flot	9.0	41.3	Own	36x5	36x5	.....	.....	7350	156
Paige 51-18	3145	Hin 200	4½x5½	32.4	L	C	Own	Fin	F	Strm	V	Sim	B-Li	DD	Bos	.....	B-Li	A	4	Spic	Per	W	Timk	Flot	10.3	50.01	Ros	36x5	36x5†	Own	Fir	7000	160
Parker J20	3950	Wis VAU	4½x6	32.4	L	C	Own	PT	F	Strm	V	Pier	B-Li	DD	Eis	W	W-Gr	A	4	Bld	Tut	W	Own	Flot	8.75	43.6	Ros	36x5	40x5†	Smi	.....	6550	160
Pierce Arrow W2	4350	Own	4½x6¾	32.4	T	C	Own	Fin	F	Strm	F	Own	Own	DD	Del	Opt	Own	A	4	.....	.....	W	Own	Flot	8	49	.....	36x5	36x5†	Day	.....	8350	162
Pittsburger D	3800	Own	4½x5¼	27.2	T	C	GO	Fin	F	Strm	V	.....	B-Li	DP	Bos	...	B-Li	U	4	Spic	C	W	Own	....	9.5	50.82	Ros	36x5	36x10	Smi	.....	6500	162
Power C	4150	Hink HA200	4½x5½	32.4	L	C	GO	PT	F	Zen	G	Hin	Full	DD	Eis	W	Full	A	4	Arv	Row	W	Wis	½Fl	10	48	Ros	36x5	40x10	StM	.....	7400	160
Rainier R-15	4400	Cont L4	4½x5½	32.4	L	G	EM	PT	FS	Zen	V	Pier	B-Li	DP	Eis	...	B-Li	A	4	Spic	SP	W	Tim	Flot	.....	.....	Ros	36x5	36x5†	.....	Fir	.....	170
Republic 20	3095	Cont E4	4½x5½	32.4	L	C	Own	Fin	FS	Strm	G	Phar	Full	DD	Bos	.....	Full	A	4	Spic	Math	I	Torb	D	10.25	49.25	Jac	36x5	36x10	Smi	Fir	6517	165
Sanford W35	.....	Cont E4	4½x5½	32.4	L	G	McC	Fin	F	Strm	G	Pier	B.B.	DP	Eis	.....	B-Li	A	4	Spic	Shel	W	Shel	½Fl	8.7	34.8	Ros	36x5	36x5†	Hoo	Fir	6750	174
Selden Unit 70	3750	Cont E7	4½x5½	32.4	L	C	Lng	Fin	FS	Strm	G	Pier	B-Li	D	Eis	...	B-Li	A	4	Spic	Per	W	Timk	Flot	8.75	42.35	Gem	36x5	36x10	Stn	.....	7200	162
Selden Unit 51	4350	Cont E4	4½x5½	32.4	L	C	Lng	Fin	FS	Strm	G	Pier	B-Li	D	Eis	W	B-Li	A	4	Spic	Per	W	Timk	Flot	6	32	Gem	36x6	40x8	Stn	Opt	6650	170

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Trade Name and Model	Chassis Price	ENGINE DETAILS: Make and Model Number 4 Cylinder unless otherwise noted	Bore and Stroke	N. A. C. C. Horsepower	Valve Arrange't	How Cooled	Radiator (Make)	Radiator (Type)	Lubrication	Carburetor	Fuel Feed	Governor (Make)	Clutch (Make)	Clutch (Type)	Ignition System	Engine Starter	GEARSET: Make	Location	Speeds	Universal (Make)	Springs (Make)	REAR AXLE: Final Drive	Make	Type	Total Gear Reduction in High	Total Gear Reduction in Low	Steering Gear (Make)	TIRES, WHEELS, RIMS: *Pneumatic †Dual Front	Rear	Wheels (Make)	Rim Eastment	Chassis Weight Stripped (S)	Wheelbase
5 Ton—Con'd		1		2	3	4	5	6	7	8	9	10	11	12	13	14	15		16	17	18	19	20			21			22	23		
*Master FL	5190	Buda ATU	4¾x6½	36.1	L	C	Chic	PT	F	Mas	V	Pier	B-Li	DD	Eis	....	B-Li	A	4	Spic	Det	R	Walk	Flot	Opt	Opt	Ros	36x6	40x6†	Wal	.....	9800	194
Menominee J	4850	Wis RAU	4¾x6	36.1	L	C	Own	Fin	FS	Strm	G	Mon	Det	DP	Eis	Opt	Cott	A	4	Spic	Tut	W	Timk	Flot	11.6	61.43	Ros	36x6	40x12	Smi	Fir	8250	160
*Moreland RX	4600	Cont B2	4¾x6	36.2	L	C	Own	C	F	....	V	Con	Own	DD	Spl	.....	Own	A	5	Ther	US	W	Timk	Flot	8.75	52.67	Ros	36x6	40x6	Smi	.....	8180	192
Nelson & LeMoon G5	.....	Cont B2	4¾x6	36.1	L	C	Chic	Fin	F	Strm	G	Con	B-Li	DD	Bos	W	B-Li	A	4	Own	Tut	W	Timk	Flot	11.66	.....	Ros	36x6	40x6†	Pru	.....	8000	Op
Ogden G 5	.....	Cont B 2	4¾x6	36.1	L	C	Chic	Fin	F	Strm	G	Con	B-Li	DD	Spl	.....	B-Li	A	4	M-E	Tut	W	Walk	....	10.33	.....	Ros	36x6	40x12	Wal	.....	8600	175
Old Reliable D	5000	Wis RAU	4¾x6	36.1	L	C	Chic	PT	F	Strm	V	Mon	Own	WD	Bos	.....	B-Li	A	4	Pet	Shel	W	Shel	½Fl	10.25	54.8	Ros	36x6	40x6	StM	.....	8400	180
Oneida E	4725	Hin 1600	4½x5½	33.5	H	C	Mod	C	F	Strm	V	Hin	Full	DD	Apo	.....	Full	A	4	Pet	Math	W	Timk	Flot	11.66	70	Ros	36x6	40x12	Smi	.....	9400	180
Packard EF	4500	Own	5 x5½	40	L	C	.....	Fin	F	Own	P	Own	Own	DP	Spl	Bj	Own	A	4	Spic	.....	W	Own	Flot	10.66	49	Ros	36x6	40x6	.....	.....	9050	156
Parker M20	4850	Wis RBU	5 x6	40	L	C	Own	PT	F	Strm	V	Sim	B-Li	DD	Eis	W	W-Gr	A	4	Bld	Tut	W	Own	Flot	10.25	51.1	Ros	36x6	40x6†	Smi	.....	8400	160
Pierce Arrow R10	4850	Own	4½x6¾	32.4	T	C	Own	Fin	F	Strm	V	Own	Own	DD	Del	Opt	Own	A	4	....	SP	W	Own	Flot	10	61.2	....	36x5	40x6†	Day	.....	9300	168
Rainier R-17	5100	Cont B-2	4¾x6	36.1	L	C	EM	Fin	F	Zen	V	Pier	B-Li	DP	.....	.....	B-Li	A	4	Spi	SP	W	Timk	Flot	.....	.....	Ros	36x6	36x36†	Smi	.....	8000	170
Rowe FW5	4850	Wis VAU	4½x6	32.4	L	C	Fed	H	F	Zen	G	Sim	B-Li	DP	Bos	.....	B-Li	A	4	Spic	Shel	W	Shel	½Fl	10.25	40.7	Ros	36x6	40x6†	Hoo	.....	8300	169
Sanford W50	.....	Cont E4	4½x5½	32.4	L	G	McC	Fin	F	Strm	G	Pier	B.B.	DP	Eis	.....	B-Li	A	4	Spic	Shel	W	Shel	½Fl	10.75	52.03	Ros	36x5	40x6†	Hoo	Fir	9070	174
Schacht	4400	Buda YTU	4½x6	32.4	L	G	Own	PT	F	Sheb	G	Dup	B.B.	D	Bos	.....	Own	A	4	M-E	Nat	W	Own	Flot	14	66.5	Own	36x5	40x6†	StM	.....	8200	168
Schwartz MS	4900	Buda YTU	4½x6	32.4	L	C	Fed	H	F	Strm	G	Sim	Full	DP	Bos	.....	Full	A	4	ME	Row	W	Shel	½Fl	10.25	61.5	Ros	36x6	40x12	Smi	Fir	8285	156
Schwartz M	4900	BudaYTU	4½x6	32.4	L	C	Fed	H	F	Strm	G	Sim	Full	DP	Bos	.....	Full	A	4	ME	Row	W	Shel	½Fl	10.25	61.5	Ros	36x6	40x12	Smi	Fir	8365	170
Schwartz ML	4900	Buda YTU	4½x6	32.4	L	C	Fed	H	F	Strm	G	Sim	Full	DP	Bos	.....	Full	A	4	ME	Row	W	Shel	½Fl	10.25	61.5	Ros	36x6	40x12	Smi	Fir	8460	186
*Selden Unit 90	4950	Cont B5	4¾x6	36.1	L	C	Lng	Fin	F	Strm	G	Phar	Det	D	Eis	.....	B-Li	A	4	Spic	SP	W	Timk	Flot	10.25	55	Gem	36x6	40x12	Stn	.....	9650	164
Signal R	3900	Cont B2	4¾x6	36.1	L	C	McC	Fin	FS	Strm	G	Con	B-Li	DD	Eis	.....	B-Li	A	4	Spic	Det	W	Timk	Flot	11.6	56.43	Ros	36x6	40x12	Smi	Gdy	9516	180
Standard 5K	4400	Cont B2	4¾x6	36.1	L	C	Lng	Fin	F	Strm	V	Con	B-Li	DD	Eis	.....	B-Li	A	4	Spic	Per	W	Timk	Flot	11.66	56.5	Gem	36x6	40x14	Day	.....	8700	164
Sterling 5-Worm	4950	Ster EU	5 x6¼	40	L	C	Own	PT	F	Zen	V	Wau	H-S	WD	Eis	.....	Own	A	3	Spic	Math	W	Timk	Flot	8.8	39.69	Ros	36x6	40x6†	Pru	.....	9450	168
Sterling 5-Chain	5500	Ster EU	5 x6¼	40	L	C	Own	PT	F	Zen	V	Wau	H-S	WD	Eis	.....	Own	A	6	UM	Math	C	Own	D	7.04	43	Ros	36x6	40x6†	Smi	.....	9950	174
*Super Truck 100	4500	Wis	4¾x6	36.1	L	C	Chic	Fin	F	Zen	G	Sim	Full	DD	Spl	.....	Full	A	4	Spic	Shel	W	Shel	½Fl	10.25	49.2	Ros	36x5	40x6†	Smi	.....	8500	164
Tiffin TW	4300	Cont B2	4¾x6	36.1	L	C	Own	Fin	F	Sheb	G	Con	B.B.	DP	Bos	W	Cott	A	4	Pet	Kal	W	Shel	½Fl	10.25	53.3	Ros	36x6	40x6†	Smi	.....	8550	168
Titan 5	.....	Buda YTU	4½x6	32.4	L	C	BW	PT	F	Strm	G	Sim	B.B	D	Eis	.....	Cott	A	4	Pet	Shel	I	Clark	D	11	59	Lav	36x5	40x12	Cla	.....	7900	156
Titan 6	5250	Buda YTU	4½x6	32.4	L	C	BW	ZZT	F	Strm	G	Eis	B.B.	DD	Eis	.....	Cott	A	4	Pet	Shel	I	Clark	D	11	59	Lav	36x5	40x6†	Cla	.....	9100	156
Transport 75	3485	Buda YTU	4½x6	32.5	L	L	.....	.....	F	Strm	G	Dup	B.B.	.....	Eis	.....	Cott	...	4	Hart	Det	I	Clark	.....	10.1	52.1	Jac	36x5	36x12	.....	.....	7600	170
Traylor F	4700	Buda YTU	4½x6	32.6	L	P	GO	Fin	F	Zen	G	Sim	B-Li	DD	Bos	.....	B-Li	A	4	Spic	Mer	W	Shel	½Fl	10.2	....	Ros	36x6	40x6†	Smi	.....	9000	170
Ultimate D	5500	Buda BTU	5 x6½	40	L	C	Own	PT	F	Strm	G	Pier	B-Li	DD	Eis	Bos	B-Li	A	4	Spic	Shel	W	Shel	½Fl	8.75	46.8	Ros	36x6	40x14	Smi	.....	8600	180
United V 5	5000	Buda YTU	4½x6	32.4	L	C	Mod	H	F	Strm	G	Sim	Full	DD	Eis	Opt	Full	A	4	Spic	Shel	I	Shel	D	12.5	75.36	Ros	36x5	40x6†	Cla	.....	9150	160
U. S., T	.....	Buda ATU	4¾x6½	36.1	L	C	Lng	Fin	F	Strm	V	Sim	B-Li	DD	Eis	Opt	B-Li	A	4	Opt	Shel	W	Shel	½Fl	10.25	54.8	Lav	36x6	40x6†	Smi	.....	9700	172
Walter S	4850	Own DU	4½x6¼	32.4	L	C	Bus	PT	F	Strm	G	Wau	B-Li	DP	Bos	W	W-Gr	A	4	Own	Stan	R	Own	Flot	10	45	Ros	36x6	40x6†	Day	.....	8200	168
Ward La France 5A	4590	.....	5 x6¼	40	L	C	Own	Fin	F	Strm	G	....	B-Li	DP	Bos	.....	B-Li	A	4	M-E	Mer	W	Timk	Flot	8.8	47.08	Ros	36x6	40x6†	Smi	.....	9300	164
White 45	4500	Own	4¼x5¾	28.9	L	C	.....	.....	Fin	F	Own	V	Own	Own	D	.....	Own	A	4	....	....	R	Own	Flot	.....	.....	Own	36x6	40x6†	.....	.....	8100	174
Wilcox F	.....	Buda	4¾x6½	36.1	L	C	.....	.....	PT	S	Strm	V	Dup	Own	C	Bos	.....	Own	A	4	Spic	Shel	R	Walk	½Fl	10.25	56.58	Own	36.5	40x12	Smi	.....	9000	162
Wilson H	4520	Own	4¾x6	36.1	L	G	Lng	PT	FS	Mar	V	Pier	B.B.	D	Eis	.....	Own	A	4	K-B	Per	W	Timk	Flot	10.25	49.6	Ros	36x6	36x6†	Smi	.....	7500	160
Winther 109	.....	Wis VAU	4½x6	32.4	L	G	Brm	PT	F	Mas	V	Dup	B.B	DP	Eis	W	B-Li	A	4	Bld	Math	I	Clark	D	12	60.5	Ros	36x5	40x6†	Cla	.....	8300	162
Wisconsin E	3500	Wau DU	4½x6¼	32.4	L	C	Chic	PT	F	Strm	V	Wau	B-Li	DD	Eis	Opt	B-Li	A	3	Spic	Det	W	Timk	Flot	9.25	.....	Lav	35x5	36x10	.....	Gdy	7000	148
Wolverine L 5	3690	Cont L	4½x5½	32.4	L	G	Lng	Fin	F	Strm	G	Phar	Full	DD	Spl	AL	Full	U	4	Up	Am	I	Clark	D	10	48	Ros	36x6*	36x10	Cla	Gdy	7300	186
5½, 6 and 7 Ton																																	
Garford 150 A-7½	5200	Buda BTU	5 x6½	40	L	C	Own	Fin	F	Strm	G	Sim	.....	DD	Spl	.....	Own	J	4	Spic	Per	C	Own	D	11.44	.....	Ros	36x6	40x7†	.....	.....	10200	162
Hall 7 Chain	.....	Cont E4	4½x5½	32.4	L	L	Own	Fin	FS	Zen	G	Dup	B-Li	DP	Bos	.....	B-Li	U	..	Opt	Det	I	.....	D	12	.....	Gem	36x5	40x6†	Smi	.....	8100	144
Hurlburt E-E	4850	Buda ATU	4¾x6½	36.1	L	C	.....	Fin	.....	.....	.....	Sim	.....	DD	Fis	.....	.....	A	4	.....	.....	C	W	.....	Flot	8.	.....	Ros	36x6	40x6	.....	.....	13000	Op
*Kelly-Springfield K60	4600	Own	4½x6½	32.4	T	C	Lng	Fin	F	Zen	G	Pier	B.B.	D	Eis	W	Covt	A	4	.....	Per	C	Own	D	12.41	50.26	Gem	36x6	40x7†	Smi	.....	9000	Op
Kelly-Springfield K61	4800	Own	4½x6½	32.4	T	C	Lng	Fin	F	Zen	G	Pier	B.B.	D	Eis	W	Covt	A	4	Pet	Per	I	Clark	D	11.6	61.8	Gem	36x6	36x7†	Cla	.....	9025	Op
MacDonald A	5750	Buda YTU	4½x6	32.4	L	C	Own	PT	F	Strm	G	Sim	B-Li	DD	Spl	.....	B-Li	U	4	Own	Own	I	Own	D	17.5	77	Own	40x7	Opt	Opt	.....	8672	Op
*Mack AC6½	5750	Own AC	5 x6	40	L	C	Own	Fin	S	Zen	G	Own	Own	DP	Spl	.....	Own	UJ	4	Spic	Mer	C	Own	D	8.95	57.41	Own	36x6	40x12	.....	.....	8950	Op
*Mack AC7½	6000	Own AC	5 x6	40	L	C	Own	Fin	S	Zen	G	Own	Own	DP	Spl	.....	Own	UJ	4	Spic	Mer	C	Own	D	9.69	62.20	Own	36x7	40x7†	.....	.....	10240	136
Old Reliable L	6000	Wau EU	5 x6¼	40	L	C	Chic	PT	S	Strm	G	Wau	Own	WD	Bos	.....	Own	J	4	Pet	Math	C	Own	D	10.86	54.9	Ros	36x6	40x7†	StM	.....	8500	168
Schacht 7	5050	Buda YTU	4½x6	32.4	L	G	Own	PT	F	Sheb	G	Dup	B.B.	D	Bos	.....	Own	A	4	M-E	Nat	W	Own	Flot	14	66.5	Own	36x6	40x7†	St M	.....	8760	171
Service 102	.....	Buda YU	4½x6	32.4	L	C	Lng	Fin	F	Strm	V	....	.....	DP	Eis	.....	B-Li	A	4	Spic	Shel	W	Timk	Flot	.....	.....	Ros	36x6	40x6†	Stn	.....	8500	168
Sterling 7½-Chain	6000	Wau	5 x6¼	40	L	C	Own	PT	F	Zen	V	Wau	H-S	WD	Eis	.....	Own	A	6	UM	Math	C	Own	D	7.26	44	Ros	36x6	40x7†	Smi	.....	10700	174
Tiffin 6 U-W	4500	Cont B2	4¾x6	36.1	L	C	Own	Fin	F	Sheb	G	Con	B.B.	DP	Bos	W	Cott	A	4	Pet	Kal	W	Shel	½Fl	10.25	53.3	Ros	36x6	40x12	Smi	.....	9200	168
Union J.W	5800	Wis RBU	5 x6	40	L	G	GO	Fin	F	Sheb	G	Dup	Full	DD	Eis	LN	Full	A	4	UP	Math	R	Walk	....	11.5	69.0	Ros	36x6	40x14	Smi	.....	9250	193
Walter R	5350	Own DU	4½x6¼	32.4	L	C	Bus	PT	F	Strm	G	Wau	B-Li	D	Eis	W	War	A	4	Own	....	....	Own	Flot	10	50	Ros	36x6	40x7†	Day	.....	8500	168
Wichita S	5000	Wau DU	4½x6¼	32.4	L	G	.....	PT	F	Strm	G	Wau	Own	C	Wag	.....	Own	A	4	Own	Det	R	Own	½Fl	14	66.3	Ros	36x6	40x6†	Smi	.....	10000	165
Winther 140	.....	Wis-RBU	5 x6	40	L	G	Brm	PT	F	Mas	V	Dup	B.B.	DP	Eis	W	B-Li	A	4	Bld	Math	I	Clark	D	12	60.5	Ros	36x6	40x7†	Cla	.....	9600	162
Gasoline Tractor-Trucks																																	
*Buffalo Six 2½	3400	Her CU3	4 x5½	25.6	L	P	Own	PT	F	Zen	V	Sim	Covt	D	Bos	Bos	Covt	...	10	Spic	Shel	W	Shel	½Fl	8.75	170	Ros	Opt	Opt	Jon	Gdy	6200	180
Federal Light Duty	2600	Cont C4	4½x5½	27.2	L	C	Own	Fin	FS	Zen	G	Phar	B.B.	DP	Eis	.....	Det	A	4	Spic	Math	W	Timk	Flot	9.2	40.7	Gem	36x4	36x7	.....	Fir	4700	120
Federal Heavy Duty	3350	Cont E4	4½x5½	32.4	L	L	Own	Fin	FS	Zen	G	Phar	B.B.	DP	Eis	.....	WC	A	4	Spic	Math	W	Timk	Flot	12	59.8	Gem	36x5	36x5†	.....	Fir	6800	114
Fulton D	2550	H Sp 7000	3½x5	19.6	L	G	GO	H	FS	Cart	G	.....	Covt	DP	Ber	.....	Covt	...	3	UP	.....	I	Russ	D	10.2	....	Lav	36x4	36x6	Hoo	.....	3300	110
Koehler MT	3275	Her	4 x5½	25.6	L	G	Own	PT	F	Zen	G	Sim	B-Li	DD	Spl	.....	B-Li	A	4	Spic	Math	W	Timk	Flot	9.25	37	Lav	36x4	36x7	Way	.....	5000	129
Lombard 140H.P	.....	Spec 6	5¾x7	72.7	L	G	Spec	H	F	Strm	P	....	.....	D	.....	.....	Spec	A	..	.....	.....	W	.....	.....	.....	.....	Spe	.....	.....	.....	.....	18000	...
Lombard 50 H.P	.....	Spec 4	5 x6¼	40	L	C	Spec	H	F	Strm	P	....	.....	D	.....	.....	Spic	A	..	.....	.....	W	.....	.....	.....	.....	Spe	.....	.....	.....	.....	8000	...
Mack AB 5-Ton	3400	Own AB	4 x5	25.6	L	C	Own	C	S	Zen	G	Own	Own	DD	Spl	.....	Own	UJ	4	Spic	Mer	C	Own	D	10.5	42.27	Own	36x4	36x4†	.....	.....	4940	120
Mack AC 7-Ton	4950	Own AC	5 x6	40	L	C	Own	Fin	S	Zen	G	Own	Own	DP	Spl	.....	Own	UJ	4	Spic	Mer	C	Own	D	9.69	62.20	Own	36x5	40x5†	.....	.....	7670	120
Mack AC 10-Ton	5500	Own AC	5 x6	40	L	C	Own	Fin	S	Zen	G	Own	Own	DP	Spl	.....	Own	UJ	4	Spic	Mer	C	Own	D	10.5	67.38	Own	36x6	40x6†	.....	.....	8250	120
Mack AC 13-Ton	5750	Own AC	5 x6	40	L	C	Own	Fin	S	Zen	G	Own	Own	DP	Spl	.....	Own	UJ	4	Spic	Mer	C	Own	D	11.58	74.29	Own	36x6	40x12	.....	.....	8272	120
Mack AC 15-Ton	6000	Own AC	5 x6	40	L	C	Own	Fin	S	Zen	G	Own	Own	DP	Spl	.....	Own	UJ	4	Spic	Mer	C	Own	D	12.92	82.92	Own	36x7	40x7†	.....	.....	8650	120
*MasterDDT	3390	Buda HU	4¼x5½	28.9	L	C	Chic	PT	FS	Mas	V	McC	Full	DP	Eis	W	War	A	4	Spic	Det	R	Walk	Flot	Opt	Opt	Ros	34x4	36x7	Wal	.....	4500	Op
Walter ST	4850	Own DU	4½x6¼	32.4	L	C	Bus	PT	F	Strm	G	Wau	B-Li	DP	Sim	.....	Own	.....	.....	.....	.....	W	Timk	Flot	10	50	Ros	36x6	40x6†	Day	.....	7900	126
Watson	4050	Cont E4	4½x5½	32.4	L	P	Jam	C	FS	Strm	G	Pier	B-Li	DP	Sim	.....	B-Li	U	4	Spic	Shel	W	Timk	Flot	8.75	42.35	Gem	34x4	36x5†	M&C	.....	6500	180

ELECTRIC COMMERCIAL CARS

E. C. M. Name and Model Number	Carrying Capacity	Chassis Weight	Chassis Price	Maximum Speed	Battery	Mileage Per Charge	Motor	Controller	Speeds Forward	Drive	Rear Axle	Springs	Front Tires	Rear Tires	Steering Gear	Wheelbase	Per Cent of Weight on Rear Wheels
Atlantic 1C	2000	2770	.....	12	Opt	.....	G-E	G-E	4	C	Timk	S-El	34x4	36x4	Ross	103	65
Atlantic 2C	4000	3590	.....	11	Opt	.....	G-E	G-E	4	C	Timk	S-El	34x4	36x3†	Ross	115	65
Atlantic 3C	7000	5220	.....	10	Opt	.....	G-E	G-E	5	C	Timk	.....	36x5	40x5†	Ross	135	65
Atlantic 5C	10000	6230	.....	9	Opt	.....	G-E	G-E	5	C	Timk	S-El	36x6	40x5†	Ross	144	65
Atlantic 6C	13000	6940	.....	8	Opt	.....	G-E	G-E	5	C	Timk	S-El	36x6	40x6	Ross	156	65
C-T D-1	1000	2200	1585	14	Opt	55	G-E	Own	4	C-T	Flot	Shel	36x3	36x3½	W	100	69
C-T B-1.5	1500	2300	1985	14	Opt	60	G-E	Own	4	C-T	Flot	Shel	36x3	36x4	W	91⅝	65
C-T D-1.5	1500	2300	1985	14	Opt	60	G-E	Own	4	C-T	Flot	Shel	36x3	36x4	W	116	71
C-T B-2	2000	2400	2150	14	Opt	50	G-E	Own	4	C-T	Flot	Shel	36x3½	36x5	W	101	66
C-T D-2	2000	2400	2150	14	Opt	50	G-E	Own	4	C-T	Flot	Shel	36x3½	36x5	W	124	70
C-T B-4	4000	4000	2575	12	Opt	50	G-E	Own	4	C-T	Flot	Shel	36x4	36x4†	W	116	68
C-T C-6	6000	4200	2575	8	Opt	35	G-E	Own	4	I	Dead	Shel	36x4	36x4†	W	116	70
C-T C-7	7000	5000	3550	10	Opt	45	G-E	Own	4	I	Dead	Shel	36x5	36x5†	W	126	65
C-T A-7	7000	5800	3850	11	Opt	45	G-E	Own	4	I	Dead	Shel	36x6	36x4†	W	122	60
C-T A-10	10000	6500	3960	10	Opt	45	G-E	Own	4	I	Dead	Shel	36x7	36x5†	W	132	59
*Kelland A	1000	1850	.....	15	Opt	50	G-E	G-E	4	R	Flot	Mer	34x3	34x3	Ross	102	60
*Kelland B	1500	1950	.....	15	Opt	50	G-E	G-E	4	R	Flot	Mer	34x3½	34x3½	Ross	102	60
*Kelland C	2000	2150	.....	15	Opt	50	G-E	G-E	4	R	Flot	Mer	34x3½	34x4	Ross	102	60
Lansden BG ¾	.....	1400	1600	15	Opt	50	G-E	G-E	4	R	Flot	SP	32x4½	32x4½	Lav	108	50
Lansden MC 1	.....	2900	1850	12	Opt	50	G-E	G-E	4	C	D	SP	36x3	36x3½	KH	108	60
Lansden MD 2	.....	4400	2250	11	Opt	50	G-E	G-E	4	C	D	SP	36x4	36x3†	KH	120	60
Lansden ME 3½	.....	5700	2950	10	Opt	45	G-E	G-E	4	C	D	SP	36x5	36x4†	KH	133	60
Lansden MF 5	.....	7500	3350	9	Opt	40	G-E	G-E	4	C	D	SP	36x6	36x5†	KH	146	60
Lansden MG 6	.....	8900	.....	7	Opt	35	G-E	G-E	4	C	D	SP	36x7	36x6†	KH	156	60
*Milburn Model 40	2000	1990	1985	15	Opt	40	G-E	Own	4	.....	W	Math	32x4½	33x5	Gem	128	62
Milburn Model 43	1000	1690	1585	18	Opt	50	G-E	Own	4	.....	W	Math	32x4½	32x4½	Gem	115	56
Walker Model 22	2000	2500	.....	14	Opt	60	West	West	5	O	Own	Math	34x3½	36x4	Ross	101	66
Walker Model 42	4000	3700	.....	13	Opt	60	West	West	5	O	Own	Math	36x4	36x6	Ross	114	66
Walker M 2	1250	2300	.....	15	Opt	60	West	West	5	O	Own	Math	34x3	36x3½	Ross	94	66
Walker N	10000	6300	.....	10	Opt	50	West	West	5	O	Own	Math	36x6	38x6†	Ross	141	66
Walker P	7000	5300	.....	11	Opt	50	West	West	5	O	Own	Math	36x5	38x5†	Ross	131	66
*Walter EN	4000	4400	2575	15	Opt	50	G-E	G-E	5	O	Dead	.....	36x4	36x7	Gem	114	60
*Walter EL	7000	4550	3475	13½	Opt	50	G-E	G-E	5	O	Dead	.....	36x5	36x4	Gem	130	60
*Walter ES	10000	7200	3975	12	Opt	50	G-E	G-E	5	O	Dead	.....	36x6	40x6	Ros	150	60
*Ward WS 2	.....	1650	.....	13	Opt	75	G-E	Own	4	W	Shel	Shel	32x3	32x3½	Own	88	56
*Ward WA	.....	2860	.....	12	Opt	52½	G-E	Own	4	W	Shel	Shel	32x3½	34x4	Own	90	61
*Ward WA 2	.....	2470	.....	12	Opt	72½	G-E	Own	4	W	Shel	Shel	32x3½	34x4	Own	90	61
*Ward WB	.....	3850	.....	10.5	Opt	45	G-E	G-E	4	W	Shel	Shel	34x4	36x5	Own	102	64
*Ward WB 2	.....	3350	.....	10.5	Opt	70	G-E	G-E	4	W	Shel	Shel	34x4	36x5	Own	102	64
*Ward WD	.....	4875	.....	9	Opt	50	G-E	G-E	4	W	Shel	Shel	36x5	36x7	Own	114	68
*Ward WD 2	.....	4350	.....	9	Opt	60	G-E	G-E	4	W	Shel	Shel	36x5	36x7	Own	114	68
*Ward WF	.....	7200	.....	8	Opt	40	G-E	G-E	5	W	Shel	Shel	36x6	36x10	Own	132	70
*Ward WF 2	.....	6450	.....	8	Opt	40	G-E	G-E	5	W	Shel	Shel	36x6	36x10	Own	132	70
*Ward WH	.....	9400	.....	7	Opt	38	G-E	G-E	5	W	Shel	Shel	36x7	40x12	Own	144	71
*Ward WH 2	.....	8200	.....	7	Opt	38	G-E	G-E	5	W	Shel	Shel	36x7	40x12	Own	144	71

Manufacturers and Models Included in Specifications on Preceding Pages

Ace—1½, 2½—American Motor Truck Co., Newark, Ohio.
Acme—1, 1½, 2 3, 4½, 6¼—Acme Motor Truck Co., Cadillac Mich.
American—2½, 4—American Motor Truck & Tractor Co., Portland, Conn.
Apex—1, 1½, 2½, 3½—Hamilton Motor Co., Grand Haven, Mich.
Armleder—1, 1½, 2½, 3½—O. Armleder Co., Cincinnati, Ohio.
Atco—1½, 2½—American Truck & Trailer Corp., Kankakee, Ill.
Atlantic—1, 2, 3, 5, 6—Atlantic Electric Vehicle Co., Newark, N. J.
Atlas—1, 1½—Industrial Motor Corp., Rochester, N. Y.
Atterbury—1½, 2½, 3½, 5—Atterbury Motor Car Co., Buffalo, N. Y.
Autocar—1½, 2, 3½, 5—Autocar Co., Ardmore, Pa.
Available—1½, 2, 2½, 3½, 5—Available Truck Co., Chicago, Ill.
Avery—1—Avery Company, Peoria, Ill.
Bell—1, 1½, 2½—Iowa Motor Truck Co., Ottumwa, Ia.
Belmont—1, 1½, 2, 3—Belmont Motors Corp., Harrisburg, Pa.
Bessemer—1, 1½, 2½, 4—Bessemer Motor Truck Co., Grove City, Pa.
Bethlehem—1, 2, 3—Bethlehem Motors Corp., Allentown, Pa.
Birch—1—Birch Motor Cars, Chicago, Ill.
Bridgeport—1½, 2½, 3½—Bridgeport Motor Truck Co., Bridgeport, Conn.
Brinton—1½, 2½—Brinton Motor Truck Co., Philadelphia, Pa.
Brockway—¾, 1½ 2½, 3½, 5—Brockway Motor Truck Co., Cortland, N. Y.
Buffalo—1½, 2½T T—Buffalo Truck & Tractor Corp., Clarence, N. Y.
C. T.—1, 1½, 2, 3½, 5—Commercial Truck Co., Philadelphia, Pa.
Capitol—1½, 2½, 3½—Capitol Motors Corp., Fall River, Mass.
Casco—1—Casco Motors, Inc., Portland, Maine.
Case—2—J. I. Case Plow Works Co., Racine, Wis.
Chevrolet—¾, 1—Chevrolet Motor Co. of Mich., Flint, Mich.
Chicago—1½, 2½, 3½, 5—Chicago Motor Truck, Inc., Chicago, Ill.
Climber—1½—Climber Motor Corp., Little Rock, Ark.
Clydesdale—¾, 1, 1½, 2½, 3½, 5—Clydesdale Motor Truck Co., Clyde, Ohio.
Collier—1, 1½, 2, 2½—Collier Motor Truck Co., Bellevue, Ohio.
Commerce—¾, 1¼, 1½, 2, 2½—Commerce Motor Truck Co., Detroit, Mich.
Concord—1½, 2, 2½, 3—Abbott-Downing Truck & Body Co., Concord, N. H.
Corbitt—¾, 1, 1½, 2, 2½, 3, 4, 5—Corbitt Motor Truck Co., Henderson, N. C.
Cyclone—1½—The Cyclone Motor Corp., Greenville, S. C.
Dart—1½, 2½, 3½—Dart Truck & Tractor Corp., Waterloo, Ia.
Day-Elder—1, 1½, 2, 2½, 3½, 5—Day-Elder Motors Corp., Newark, N. J.
Dearborn—1, 1½, 2—Dearborn Truck Co., Chicago, Ill.
Defiance—1, 1½, 2—Defiance Motor Truck Co., Defiance, Ohio.
Denby—1, 1½, 2, 3, 4, 5—Denby Motor Truck Co., Detroit, Mich.
Dependable—1, 1½, 2, 2½, 3½—Dependable Truck & Tractor Co., East St. Louis, Ill.
Diamond T—1¼, 1½, 2, 3½, 5—Diamond T Motor Car Co., Chicago, Ill.
Diehl—1, 1½—Diehl Motor Truck Works, Philadelphia, Pa.
Dixon—Dixon Motor Truck Co., Altoona, Pa.
Dodge—½—Dodge Bros., Detroit, Mich.
D-Olt—1½, 2½, 5—D-Olt Motor Truck Co., Inc., Long Island City, N. Y.
Dorris—1, 2, 3½—Dorris Motor Car Co., St. Louis, Mo.
Dort—½—Dort Motor Car Co., Flint, Mich.
Double Drive—4—Double Drive Truck Co., Chicago, Ill.
Douglas—1½, 2, 3—Douglas Motors Corp., Omaha, Neb.
Drake—2—Drake Motor & Tire Mfg. Corp., Knoxville, Tenn.
Duplex—2, 3½—Duplex Truck Co., Lansing, Mich.
Eagle—2—Eagle Motor Truck Corp., St. Louis, Mo.
Erie—1½, 2½—Erie Motor Truck Mfg. Co., Erie, Pa.
Eugol-1—Eugol Motor Truck Co., Kenosha Wis.
F. W. D.—3—Four-Wheel Drive Auto Co., Clintonville, Wis.
Facto—2½—Facto Motor Trucks, Springfield, Mass.
Fageol—2, 3, 4, 5—Fageol Motors Co., Oakland, Cal.
Fargo—2—Fargo Motor Truck Co., Chicago, Ill.
Federal—¾, 1, 1½,2, 3½, 5, T.T.—Federal Motor Truck Co., Detroit, Mich.
Ford—1—Ford Motor Co., Highland Park, Mich.
Forschler—1, 1½, 2, 3—Forschler Motor Truck Mfg. Co., New Orleans, La.
Front Drive—1½—Double Drive Truck Co., Chicago, Ill.
Fulton—1, 2, T.T.—Fulton Motors Corp., Farmingdale, N. Y.
G. M. C.—1, 2, 3½, 5—General Motors Truck Co., Pontiac, Mich.
G. W. W.—1½—Wilson Truck Mfg. Co., Henderson, Ia.
Garford—¼, 1¼, 2, 3½ 5, 7½—Garford Motor Truck Co., Lima, O.
Gary—1, 2, 2½, 3½, 5—Gary Motor Corp., Gary, Ind.
Gersix—1½, 2½, 3—Gersix Mfg. Co., Seattle, Wash.
Giant—1½, 2½, 3½, 5—Giant Truck Corp., Chicago Heights, Ill.
Graham—1, 1½—Graham Brothers, Evansville, Ind.
Gramm-Bernstein—1, 1½, 2, 3, 3½, 4, 5—Gramm-Bernstein Motor Truck Co., Lima, Ohio.
Hal-Fur—2, 3½—Hal-Fur Motor Truck Co., Cleveland, Ohio.
Hall—2½, 3½, 5, 7—Lewis-Hall Motors Corp., Detroit, Mich.
Harvey—2, 2½, 3½—Harvey Motor Truck Co., Harvey, Ill.
Hawkeye—1—Hawkeye Truck Co., Sioux City, Iowa.
Hendrickson—2½, 3½, 5—Hendrickson Motor Truck Co., Chicago, Ill.
Higrade—1, 1½—Higrade Motors Co., Harbor Springs, Mich.
H. R. L.—¾, 1½, 2½—H. R. L. Motor Co., Seattle, Wash.
Hug—1½—The Hug Co., Highland, Ill.
Hurlburt—1½, 2½, 3½, 5, 7—Harrisburg Mfg. & Boiler Co., Harrisburg, Pa.
Huron—1½, 2½—Huron Truck Co., Bad Axe, Mich.
Independent—1, 1½, 2½—Independent Motor Truck Co., Inc., Davenport, Ia.
Indiana—1, 1½, 2, 2½, 3½, 5—Indiana Truck Corp., Marion, Ind.
International—1, 1½, 2, 3, 5—International Harvester Co., Chicago, Ill.
Jackson—3½—Jackson Motors Corp., Jackson, Mich.
Kalamazoo—1½, 2½, 3½—Kalamazoo Motor Corp., Kalamazoo, Mich.

Kearns—¾, 1½—Kearns-Dughie Motors Co., Danville, Pa.
Kelland—Kelland Motor Car Co., Newark, N. J.
Kelly-Springfield—1½, 2½, 3½, 5, 6—Kelly-Springfield Motor Truck Co., Springfield, O.
Keystone—2—Keystone Motor Truck Corp., Philadelphia, Pa.
Kimball—2, 2½, 3, 4, 5—Kimball Motor Truck Co., Los Angeles, Cal.
Kissel—1, 1½, 2½, 4, 5—Kissel Motor Car Co., Hartford, Wis.
Kleiber—1, 1½, 2, 2½, 3½, 5—Kleiber & Co., Inc., San Francisco, Cal.
Koehler—1½, 2½, 3½, T.T.—H. J. Koehler Motors Corp., Bloomfield, N. J.
Lange—2, 2½—Lange Motor Truck Co., Pittsburgh, Pa.
Lansden—¾, 1, 2, 3½, 5, 6—Lansden Company, Danbury, Conn.
Larrabee-Deyo—1½, 2½, 3½, 5—Larrabee-Deyo Motor Truck Co., Inc., Binghamton, N. Y.
Lombard—T.T.—Lombard Auto Tractor Truck Corp., New York, N. Y.
Luedinghaus—1, 1½, 2—Luedinghaus-Espenschied Wagon Co., St. Louis, Mo.
Maccar—1½, 2, 3, 4, 5—Maccar Truck Co., Scranton, Pa.
MacDonald—7—MacDonald Truck & Tractor Co., San Francisco, Cal.
Mack—1½, 2, 2½, 3½, 5, 6½, 7½, T.T.—International Motor Co., New York, N. Y.
Master—1½, 2½, 3½, 5, T.T.—Master Trucks, Inc., Chicago, Ill.
Maxwell—1½—Maxwell Motor Co., Inc., Detroit, Mich.
Menominee—1, 1¼, 2, 3½, 5—Menominee Motor Truck Co., Menominee, Mich.
Moline—1½—Moline Plow Co., Moline, Ill.
Moreland—1, 1½, 2, 3, 5—Moreland Motor Truck Co., Los Angeles, Cal.
Napoleon—¾, 1, 1½—Napoleon Motors Co., Traverse City, Mich.
Nash—1, 2—Nash Motors Co., Kenosha, Wis.
Nelson-LeMoon—1½, 2½, 3½, 5—Nelson & LeMoon, Chicago, Ill.
Netco—2, 2½—New England Truck Co., Fitchburg, Mass.
Niles—2—South Main Motor Co., Pittsburgh, Pa.
Noble—1½, 2, 2½, 3½—Noble Motor Truck Co., Kendallville, Ind.
Northway—2, 3½—Northway Motors Co., Natick, Mass.
Norwalk—1, 1½—Norwalk Motor Car Co., Martinburg, W. Va.
O. K.—1½, 2½, 3½—Oklahoma Auto Mfg. Co., North Muskogee, Okla.
Ogden—¼, 1½, 2½, 3½, 5—Ogden Motor Truck Co., Chicago, Ill.
Old Reliable—1½, 2½, 3½, 5, 6—Old Reliable Motor Truck Co., Chicago, Ill.
Oldsmobile—1—Olds Motor Works, Lansing, Mich.
Olympic—2½—Olympic Motor Truck Co., Tacoma, Wash.
Oneida—2, 2½, 3½, 5—Oneida Motor Truck Co., Green Bay, Wis.
Oshkosh—2, 2½—Oshkosh Motor Truck Mfg. Co., Oshkosh, Wis.
Packard—2, 3½, 5—Packard Motor Car Co., Detroit, Mich.
Paige—1½, 2½, 3½—Paige-Detroit Motor Car Co., Detroit, Mich.
Parker—1, 2½, 3½, 5—Parker Motor Truck Co., Milwaukee, Wis.
Patriot—1, 2, 3—Patriot Mfg. Co., Lincoln, Neb.
Penn—1, 2—Penn Motors Corp., 1714 N. Broad St., Philadelphia, Pa.
Pierce-Arrow—2, 3½, 5—Pierce-Arrow Motor Car Co., Buffalo, N. Y.
Pioneer—1—Pioneer Truck Co., Chicago, Ill.
Pittsburger—2½, 3½—Pittsburgh Truck Mfg. Co., Pittsburgh, Pa.
Power—1½, 3½—Power Truck & Tractor Co., St. Louis, Mo.
Premocar—1½—Preston Motors Corp., Birmingham, Ala.
Rainier—¾, 1, 1½, 2, 2½, 3½, 5—Rainier Motor Corp., New York N. Y.
Ranger—2—Southern Motor Mfg. Ass'n, Ltd., Houston, Tex.
Reliance—1½, 2½—Reliance Motor Truck Co., Appleton, Wis.
Reo—1¼—Reo Motor Car Co., Lansing, Mich.
Republic—¾, 1, 1½, 2½, 3½—Republic Motor Truck Co., Inc., Alma, Mich.
Rowe—1½, 2, 3, 4, 5—Rowe Motor Mfg. Co., Lancaster, Pa.
Ruggles—1, 2—Ruggles Motor Truck Co., Saginaw, Mich.
Rumely—1½—Advance-Rumely Thresher Co., Inc., La Porte, Ind.
Samson—¾, 1¼—Samson Tractor Co., Janesville, Wis.
Sanford—2, 3½, 5—Sanford Motor Truck Co., Syracuse, N. Y.
Schacht—2, 3, 4, 5, 7—G. A. Schacht Motor Truck Co., Cincinnati, O.
Schwartz—1, 2, 3, 5—Schwartz Motor Truck Co., Reading, Pa.
Selden—1½, 2½, 3½, 5—Industrial Motor Corp., Rochester, N. Y.
Service—¾, 1¼, 1½, 2, 3, 3½, 4—Service Motor Truck Co., Wabash, Ind.
Signal—1, 1½, 2½, 3½, 5—Signal Truck Corp., Detroit, Mich.
Southern—1, 1½, 2—Southern Truck & Car Corp., Greenboro, N. C.
Standard—¾, 1½, 2½, 3½, 5—Standard Motor Truck Co., Detroit, Mich.
Sterling—1½, 2, 2½, 3½, 5, 7½—Sterling Motor Truck Co., Milwaukee, Wis.
Stewart—1, 1¼, 1½, 2, 2½, 2, 3½—Stewart Motor Corp., Buffalo, N. Y.
Stoughton—¾, 1, 1½, 2, 3—Stoughton Wagon Co., Stoughton, Wis.
Super Truck—2½, 3½, 5—O'Connell Motor Truck Co., Waukegan, Ill.
Superior—1, 2, 4—Superior Motor Truck Co., Atlanta, Ga.
Tiffin—1½, 2½, 3½, 5, 6—Tiffin Wagon Co., Tiffin, Ohio.
Titan—2, 3½, 5, 6—Titan Truck Co., Milwaukee, Wis.
Thomart Speed—1¼—Thomart Motor Co., Kent, Ohio.
Tower—1½, 2½, 3½—Tower Motor Truck Co., Greenville, Mich.
Traffic—1½, 2, 3—Traffic Motor Truck Corp., St. Louis, Mo.
Transport—1, 1½, 2, 3, 3½, 5—Transport Truck Co., Mt. Pleasant, Mich.
Traylor—1½, 2, 3, 5—Traylor Eng. & Mfg. Co., Cornwells, Pa.
Triangle—¾, 1½, 2, 2½—Triangle Motor Truck Co., St. Johns, Mich.
Triumph—1½, 2, 2½—Triumph Truck & Tractor Co., Kansas City, Mo.
Twin City—2, 3½—Twin City Company, Minneapolis, Minn.
Ultimate—1½, 2, 2½, 3, 5—Vreeland Motor Co., Inc., Newark, N. J.
Union—2½, 4, 6—Union Motor Truck Co., Bay City, Mich.
United—1, 1½, 2½, 3½, 5—United Motor Products Co., Grand Rapids, Mich.
Ursus—1, 1½, 2½, 3½—Ursus Motor Co., Inc., Chicago, Ill.
U. S.—1¼, 1½, 3, 4, 5—United States Motor Truck Co., Cincinnati, Ohio.
Velie—1½—Velie Motors Corp., Moline, Ill.
Vim—½, 1, 2, 3—Vim Motor Truck Co., Philadelphia, Pa.
Vulcan—2½—Vulcan Mfg. Co., Seattle, Wash.
Walker—½, 1, 2, 3½, 5—Walker Vehicle Co., Chicago, Ill.
Walker-Johnson—2, 2½—Walker-Johnson Truck Co., Woburn, Mass.
Walter—2, 2½, 3½, 5, 7—T. T. Walter Truck Co., New York, N. Y.
Walter—Fink Dumont White, Inc., New York, N. Y.
Ward—¼, 1, 2, 3½, 5—Ward Motor Vehicle Co., Mt. Vernon, N. Y.
Ward La France—2½, 3½, 5—Walker Motors Inc., New York, N. Y.
Watson—¾, 3½, T.T.—Watson Wagon Co., Canastota, N. Y.
White—¾, 2, 3½, 5—White Co., Cleveland, Ohio.
White Hickory—1, 1½, 2½—White Hickory Motor Corp., Atlanta, Ga.
Wichita—1, 2, 3, 3½, 5½—Wichita Falls Motors Co., Wichita Falls, Tex.
Wilcox—1, 1½, 2½, 3½, 5—Wilcox Trux, Inc., Minneapolis, Minn.
Wilson—1½, 2½, 3½, 5—J. C. Wilson Co., Detroit, Mich.
Winther—1, 1½, 2, 2½, 3½, 5, 7—Winther Moter Truck Co., Kenosha, Wis.
Wisconsin (Loganville)—2, 2½—Wisconsin Truck Co., Loganville, Wis.
Wisconsin (Sauk City)—1, 1½, 2½, 3½—Wisconsin Farm Tractor Co., Sauk City, Wis.
Witt-Will—1½, 2—Witt-Will Co., Inc., Washington, D. C.
Wolverine—1, 1½, 2, 2½, 3½—American Commercial Car Co., Detroit, Mich.
Yellow Cab—¾, 1¼—Yellow Cab Mfg. Co., Chicago, Ill.

Where Truck and Trailer Freight Hauling Paid

Chas. L. Parker, operator of a model 125 Acme truck and two trailers, one a 5-ton Troy and the other a 5-ton Detroit, between Detroit and Toledo, makes an average weekly mileage of about 500, all under load, for he picks up a load in Detroit, takes it to Toledo, unloads, then picks up a load for Detroit. The business is so conducted that the truck and trailer never run empty between the two cities. The nature of the hauling is heavy raw materials to and from manufacturers in the two cities, also the finished product from others. Although warehouses are maintained in both Detroit and Toledo, Parker's truck goes direct to the factory, accepting freight of all kinds or loads at the warehouse, depending entirely upon the orders for that day.

Rates are exactly identical to those charged by the railroads. The popularity of the truck and trailer method lies in the rapid delivery service rendered. Delivery is guaranteed within 24 hours or less after the material is loaded on the truck.

The loads are taken direct to their destination and unloaded at a warehouse, then again loaded and taken to the place where the material is to be used, thus eliminating two handlings and considerable time.

During the first two years Parker's record shows that he has transferred more than 5 thousand tons of freight between Detroit and Toledo. From August 1 to 19 of the present year Parker's two trailers hauled 627,122 lb. Another truck, having an oversize body, an extra long wheelbase, and extra large cab, was recently put into service on this route to take care of increased business.

Parker is very enthusiastic over his enterprise as the additional truck and trailer will enable him to about double the total volume of business.

Truck and Trailer Outfit Profitably Operated by a Detroit Hauler

What Plans Have You Made for Winter Business?

(*Concluded from page 24*)

"How come your truck started so easy?" asked the Providence service head. "She should have given some trouble."

"Nothing to it," replied Tommy. "You see she had a ..... primer."

"What, using a primer so early?"

Sell Equipment Installed

"Sure, and why not? Why wait until starting troubles begin? Billy Stebbins says an ounce of prevention is worth a pound of cure. He has been advising our owners to use primers for some time on these cold mornings. And by the way, we sold a bunch of these last year and expect to sell more this winter. We sell for a fixed price which includes installation. We find that a price for the article and a charge for labor scares many prospects. Give them the net cost, installed, and they forget the list price. Beats the mail order game forty ways.

"Perhaps you will be interested in what Billy is doing to protect the cooling systems from freezing. Gets mighty cold up our way and early." J. G. nodded approvingly.

"Well," continued Tommy, "Billy has been gathering some statistics on weather for some time. He worked these up in card form and sent them to all the farmers, owners of our trucks and others. Billy got up a table showing the coldest days of each year for way back, gave the number of snow storms for last year, the depth of the snow fall and also worked in some dope on record snow falls for various years, a sort of history. It pleased the farmers for they had something authentic to show when some one talked about the biggest snow fall, etc.

"Last year's records were quoted. I've the dope here. The Government Weather Bureau says that in 1921 there were 135 days of rain and snow and that 35 days were snow. For 225 days the temperature was below 55 and that 81 days the thermometer was 32 and below. Water freezes at about 32, you know. The first freezing weather occurred on October 27 and in November there were 21 days with the temperature well below the freezing mark. And low records for December, January, March and April were given. Rather interesting, what?"

But J. G's service manager didn't see anything interesting, particularly from his standpoint and said so. Tommy smiled and J. G. glared at the speaker.

Issues Insurance Against Freezing

"Well," said Tommy, "I suppose I'm going all around the barn several times to find the door but I wanted to give you the human angle. You see if you want to sell a farmer something you have got to get his interest so these figures do the trick. Now on the bottom of the card is a few lines informing the farmer owning a truck what happens to his pocketbook if the cooling system freezes. Billy figures out the cost of parts and labor and it is some money. Then he goes on to explain that we have evolved an insurance policy against freezing and that it costs but a few cents only. Will the prospect inquire, call or be called upon? Billy got out a snappy letter to go with it, calling attention to the weather records, but left the selling kick to the card. It has worked out like a charm."

The Providence head again expressed himself as in the dark and asked to be enlightened how weather records made any money for the service station.

"Why," said Tommy, "what Billy is after is to sell our trade some form of an anti-freezing solution and to make sure that it is put in early enough to preclude any possibility of damage. You see Billy, after he gets contact, explains to the farmer the parts having water, how the water functions and what damage would ensue should the water freeze in the parts. Next, he explains why the labor in removing the damaged part and replacing the new. Billy rigged a display table with the parts on, with prices attached plus the labor charge, and put it in the show room with a card calling attention to a free insurance policy, against freezing.

Selling Anti-Freeze Service

"As to the insurance policy, We tell the owner if he will come in now and have us clean his cooling system, put in a small amount of anti-freeze, and come to our station every so often to have the solution checked to see the freezing point has not raised by evaporation, we will insure the truck against freezing. At the present time Billy is using alcohol and he has a freezemeter, something like the battery hydrometer, which is stuck in the radiator and the solution drawn out. This device has a float which is calibrated to show plus or minus in degrees and shows exactly and quickly the temperature at which the solution will freeze. Now some of the owners wish to buy their own alcohol and freezemeter so Billy sells them and shows them how to use the device. Now we do not stick to alcohol alone as we have stocked a prepared solution. No, we do not favor alcohol and glycerine as it attacks the rubber. Neither do we sanction the use of kerosene as it also attacks the rubber and means new inlet and outlet rubber hose. You see, it is really a service plan, to guard our owners against trouble and expense. There is a profit in it and besides Billy gets a chance to look over the truck and note what equipment is needed. Take tire chains. That weather dope on snow and rain is more convincing for tire chains than any salesman's talk. Primers the same, and we plan to do a nifty business on heaters, etc. Why drive in the cold when you can be comfortable?"

"A mighty good plan, a fine idea, Tommy," remarked J. G., and turning to his service head asked what plans he had made on anti-freezing, "Why, none as yet, Mr. Wilkins," was the reply. "It is "It is so much better to wait until a few too early now. It is only October and"—

"Oh, of course," snapped back J. G. of our customers get caught some fine night. Suppose you think it will make business for you. Of course we should wait until it really happens and some other live wire in this town puts across the idea and steals our trade. Tommy, let me have that dope, will you?" Tommy passed it over. "Now," continued J. G. to his service head, "perhaps you can copy the ideas of some brainy men. If I hear of any of our customers losing the services of their trucks through freezing I will deduct the cost of repairs from your salary. Get busy and good day!"

"Oh, I say, J. G." said Tommy, "I am sorry I started something, perhaps I should have kept quiet."

"Quiet nothing," snorted J. G. "Perhaps that fellow will wake up and realize that it is the duty of us dealers to think for our customers when it comes to service. And—

Jimmy Still Retains His Job

At this point Jimmy stuck his head in the door and ignoring the signs of rising wrath on his employer's face remarked, "Say, Tommy, the kid took to that doo dad like a bull pup to meat," and Jimmy beat it before Tommy could reply or J. G. get into action.

"What's this about a kid and a doo dad. I'm going to fire that boy now."

But Tommy smiled. "Why, J. G., Jimmy made a train and tracks with an engine that runs with current from the electric light and I met him on the way to my house with it as I came along. It is some toy and J. G.—your namesake—must have been pleased. He likes Jimmy and Jimmy dotes on the youngster."

J. G. reached for his desk phone. "Give me the cashier," he said, and when the connection was made, said, "Mr. Perkins, countermand that order to discharge Jimmy."

Sometimes even a chauffeur can apply psychology.

Yellow Cabs Meeting With Success in Europe

Yellow cabs are meeting with much success in foreign countries according to John Hertz, president of the Yellow Cab Co., who recently returned from Europe after making a survey of the taxicab situation on the Continent. A syndicate of Parisian bankers is behind the installation of Yellows in Paris and an initial order placed for 25 cabs with 475 to follow if they prove satisfactory. Yellow cabs are to become a part of the London transport system as a Yellow Cab agency has already been installed in that city.

Big Electric Show to be Held at Pittsburgh

An electrical show will be held in Motor Square Garden, Pittsburgh, Pa., beginning November 4 and continuing for one week. The show, which will be the first held in Pittsburgh in several years, will be sponsored by the Electric League of Pittsburgh.

Paul D. Lockard, of the Duquesne Light Company has been appointed general manager of the show.

One hundred and sixty exhibitors will have exhibits and elaborate electric lighting and decorations will be provided to make the setting an attractive one for those who attend.

Price List of Truck Pneumatic Tire Casings, With Capacities and Inflation Pressures of Larger Sizes

	30 3½	32 4	34 4	32 4½	34 4½	33 5	34 5	35 5	36 x 6			38 x 7			40 x 8			42 x 9			44 x 10		
									Price	Carrying Capacity	Inflation Pressure	Price	Carrying Capacity	Inflation Pressure	Price	Carrying Capacity	Inflation Pressure	Price	Carrying Capacity	Inflation Pressure	Price	Carrying Capacity	Inflation Pressure
Achilles Rubber & Tire Co., Binghampton, N. Y.																							
Achilles Cord, non-skid	30.00	.....	.....	.....	.....	.....	60.00	.....	83.00	2200	90	125.00	3000	100	.....	....	...	.....	....	...	.....	....	...
Acme Rubber Mfg. Co., Trenton, N. J.																							
Acme Cord, non-skid	16.00	29.00	31.00	35.00	37.00	47.00	.....	49.00	72.00	2200	90	90.00	3000	100	.....	....	...	.....	....	...	.....	....	...
Ajax Rubber Co., Inc., New York, N. Y.																							
Ajax Improved Black Tread Cord, non-skid	14.65	29.15	30.85	37.70	39.50	46.95	.....	49.30	78.55	2000	90	113.85	3000	100	146.65	4000	100	.....	....	...	317.25	6000	130
Amazon Rubber Co., Akron, O.																							
Amazon Cord, non-skid	15.95	29.15	30.85	37.70	39.50	46.95	.....	49.30	70.25	2200	90	.....	....	...	.....	....	...	.....	....	...	.....	....	...
American Rubber & Tire Co., Akron, O.																							
American Cord, non-skid	18.75	34.00	36.00	43.75	45.25	54.25	57.50	56.75	82.65	2300	90	115.40	3100	100	148.70	4100	110	.....	....	...	.....	....	...
Armstrong Rubber Co., Inc., Garfield, N. J.																							
Armstrong Super Size Cord, non-skid	15.95	30.60	32.40	39.60	41.50	49.30	51.00	51.75	86.00	2200	90	120.00	3000	100	156.00	4000	110	.....	....	...	.....	....	...
Biekre Tire & Rubber Co., St. Paul, Minn.																							
Biekre Cord, non-skid	.....	33.45	35.40	41.95	43.90	52.20	.....	54.70	97.50	2200	90	.....	....	...	156.75	4000	110	.....	....	...	.....	....	...
Braender Rubber & Tire Co., Rutherford, N. J.																							
Braender Bull-Dog Super, non-skid cord	18.00	32.40	34.25	41.90	43.90	52.15	54.10	54.75	78.55	2200	90	113.85	3000	100	146.65	4000	110	.....	....	...	.....	....	...
Brunswick-Balke-Collender Co., Chicago, Ill.																							
Brunswick Cord, non-skid	16.50	29.15	30.85	37.70	39.50	46.95	48.25	49.30	80.45	2200	90	113.85	3000	100	146.65	4000	110	198.36	5000	120	.....	....	...
Burdick Tire & Rubber Co., Noblesville, Ind.																							
Air Bag Cord, non-skid	39.50	58.75	62.25	67.25	70.50	80.00	.....	83.00	143.00	2200	90	184.00	3000	100	238.00	4000	110	.....	....	...	.....	....	...
Canton-Blackstone Co., Youngstown, O.																							
Canton Cord, non-skid	20.00	33.45	35.35	43.25	45.30	53.80	55.10	56.50	82.65	2200	90	115.45	3000	100	148.70	4000	110	.....	....	...	.....	....	...
Columbia Tire & Rubber Co., Mansfield, O.																							
Columbia Cord Giant	17.60	.....	.....	.....	.....	.....	50.15	51.75	81.45	2200	90	.....	....	...	152.10	4000	120	.....	....	...	.....	....	...
Combination Rubber Mfg. Co., Bloomfield, N. J.																							
Combination Viking Fabric, non-skid	14.90	22.90	24.60	30.65	32.65	37.60	40.05	.....	.....	....	...	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Combination Viking Cord, non-skid	17.20	29.15	30.85	37.70	39.50	46.95	48.15	49.30	74.40	....	...	.....	....	...	133.85	....	...	.....	....	...	.....	....	...
Cooper Corporation, Findlay, Ohio																							
Cooper Cord, non-skid	18.90	34.02	35.96	43.05	45.26	54.08	55.13	56.44	85.89	2200	90	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Dayton Rubber Mfg. Co., Dayton, Ohio																							
Thorobred Cord, non-skid	17.95	32.75	34.95	41.75	43.75	51.75	53.50	54.50	82.25	2200	90	120.10	3000	100	155.20	4000	110	.....	....	...	.....	....	...
Empire Tire & Rubber Co., Trenton, N. J.																							
Empire Cord, non-skid	15.95	29.15	30.85	37.70	39.50	46.95	53.30	49.30	76.30	2000	90	108.00	2700	100	139.15	3650	110	.....	....	...	.....	....	...
Erie Tire & Rubber Co., Sandusky, O.																							
Erie Cord, non-skid	15.95	29.15	30.85	37.70	39.50	46.95	49.00	51.50	76.50	2200	90	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Falls Rubber Co., Cuyahoga Falls, O.																							
Falls Cord, non-skid	19.50	34.00	36.50	43.25	45.75	60.00	62.50	65.00	92.00	2200	90	125.00	3000	100	160.00	4000	110	.....	....	...	.....	....	...
Federal Rubber Co. of Illinois, Cudahy, Wis.																							
Federal Cord	.....	.....	.....	41.45	43.45	51.65	52.95	54.25	70.50	2250	100	98.00	3000	110	125.50	4000	120	.....	....	...	.....	....	...
Firestone Tire & Rubber Co., Akron, O.																							
Firestone Cord, non-skid	.....	.....	.....	39.60	41.50	49.30	50.60	51.75	82.65	2200	90	118.55	3000	100	151.95	4000	110	243.00	5000	120	.....	....	...
Fisk Rubber Co., Chicopee Falls, Mass.																							
Fisk Truck Cord	.....	.....	.....	41.45	43.45	51.65	52.95	54.25	70.00	2200	90	97.50	3000	100	125.00	4000	110	.....	....	...	.....	....	...
Gates Rubber Co., Denver, Colo.																							
Gates Cord, non-skid	12.90	28.55	30.75	36.80	38.60	47.65	56.40	49.80	82.85	2200	90	115.70	3000	100	148.90	4000	110	.....	....	...	.....	....	...
General Tire & Rubber Co., Akron, O.																							
General Cord, non-skid	19.70	34.95	37.85	44.45	46.55	54.90	53.75	60.90	83.40	2000	90	116.30	3000	100	153.15	4000	110	239.95	5000	120	334.30	6000	130
Gillette Rubber Co., Eau Claire, Wis.																							
Gillette Cord, non-skid	16.95	29.15	30.75	37.75	39.50	46.90	48.50	49.25	70.50	2200	90	97.50	3000	100	125.00	4000	110	.....	....	...	.....	....	...
Goodrich, B. F., Rubber Co., Akron, O.																							
Goodrich De Luxe Cord	.....	.....	.....	39.85	41.75	49.65	50.95	52.05	82.65	2200	90	118.55	3000	100	151.95	4000	110	.....	....	...	.....	....	...
Goodrich Silvertown Cord	13.50	29.15	30.85	37.70	39.50	46.95	.....	49.30	.....	....	...	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Goodyear Tire & Rubber Co., Akron, O.																							
Goodyear Cord, All-Weather Tread	.....	.....	.....	37.70	39.50	46.95	48.20	49.30	85.75	....	...	119.70	....	...	154.25	....	...	247.85	....	...	346.40	....	...
Goodyear Rut Proof	.....	.....	.....	39.60	41.50	49.30	50.60	51.75	90.05	....	...	125.75	....	...	161.95	....	...	.....	....	...	.....	....	...
Goodyear Cross-Rib	.....	.....	.....	31.45	32.95	39.10	40.10	41.05	64.30	....	...	89.80	....	...	115.70	....	...	.....	....	...	.....	....	...
Gordon Tire & Rubber Co., Canton, Ohio																							
Gordon Triangle Cord, non-skid	18.00	32.50	34.50	42.70	44.85	53.20	.....	55.85	90.00	2200	90	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Grand Rapids Tire & Rubber Corp., Grand Rapids, Mich.																							
Corduroy Cords, non-skid	15.95	29.15	30.85	37.70	39.50	46.95	48.20	49.30	85.75	2200	90	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Hewitt Rubber Co., Buffalo, N. Y.																							
Hewitt Cord, non-skid	15.95	.....	.....	.....	.....	.....	51.80	53.25	82.65	2200	90	115.40	3000	100	.....	....	...	.....	....	...	.....	....	...
Howe Rubber Corp., Inc., New Brunswick, N. J.																							
Howe Ultra Cord, non-skid	24.75	33.10	35.45	42.25	44.20	52.00	53.20	54.30	85.00	2200	90	120.00	3000	100	.....	....	...	.....	....	...	.....	....	...
India Tire & Rubber Co., Akron, O.																							
India Cord, non-skid	16.95	28.90	30.70	38.45	40.25	47.70	49.25	50.15	77.30	....	...	108.05	....	...	139.30	....	...	.....	....	...	.....	....	...

Iowa Cord Tire Co., Inc., Des Moines, Ia.																						
Iowa Cord, non-skid	17.85	29.93	31.68	36.77	38.57	45.79	.....	48.02	68.21	2200	90	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Iowa Fabric, non-skid	14.20	24.70	26.51	33.01	35.15	40.71	43.08	.....	.....	....	...	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Kelly-Springfield Tire Co., New York, N. Y.																						
Kelly-Springfield Cord, Kant Slip	18.95	32.75	34.95	42.40	44.30	52.30	.....	54.40	90.90	2200	90	121.50	3000	100	157.50	4000	110	.....	....	...	.....	....	...
Kenyon Co., Inc., Brooklyn, N. Y.																						
Kenyon Cord, non-skid	15.95	29.15	30.85	37.70	39.50	46.95	54.00	44.30	70.00	2200	90	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Kenyon Duro-Cord	12.50	23.65	25.65	30.50	32.50	38.50	.....	39.50	.....	....	...	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Keystone Tire & Rubber Co., New York, N. Y.																						
Keystone Cord, non-skid	16.95	29.15	30.85	37.70	39.50	46.95	49.05	49.30	74.60	2200	90	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Kokomo Rubber Co., Kokomo, Ind.																						
Kokomo Cord, non-skid	15.60	29.15	30.80	37.70	39.50	46.95	.....	49.30	70.00	2200	90	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Lee Tire & Rubber Co., New York, N. Y.																						
Lee P. P. Cord	.....	39.85	41.95	54.25	56.75	64.50	66.25	67.75	98.50	1970	90	135.05	2720	100	173.75	3595	110	.....	....	...	.....	....	...
McClaren Rubber Co., Charlotte, N. C.																						
Autocrat Cord, non-skid	18.75	32.50	34.50	42.80	44.85	53.20	54.85	55.95	82.65	2200	90	.....	....	...	.....	....	...	.....	....	...	.....	....	...
McGraw Tire & Rubber Co., Cleveland, Ohio																						
McGraw Cord, rib or non-skid	18.00	32.40	34.25	41.90	43.90	52.15	.....	54.75	78.05	2200	90	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Madison Tire & Rubber Co., Inc., Buffalo, N. Y.																						
Madison Oversize Cord	21.00	36.90	38.20	45.75	48.00	57.00	.....	60.00	90.00	2200	90	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Majestic Tire & Rubber Co., Indianapolis, Ind.																						
Majestic Cord, non-skid	26.35	37.65	39.85	42.55	44.70	53.00	.....	55.70	91.85	2200	90	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Manhattan Tire & Rubber Co., The, Mansfield, O.																						
Manhattan Giant Cord	17.60	.....	.....	.....	.....	.....	50.15	51.75	81.45	2200	90	.....	....	...	152.10	4000	120	.....	....	...	.....	....	...
Marathon Tire & Rubber Co., Cuyahoga Falls, O.																						
Marathon Cord, non-skid	17.75	29.15	30.85	37.70	39.50	46.95	48.15	49.30	74.40	....	...	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Mason Tire & Rubber Co., Kent, O.																						
Mason Cord, non-skid	15.80	24.50	25.35	30.75	32.40	38.95	.....	39.95	80.40	2200	90	110.40	300	100	142.20	4000	110	.....	....	...	.....	....	...
Mellinger Tire & Rubber Co., Kansas City, Mo.																						
Mellinger Cord, non-skid	18.00	32.40	34.25	41.90	43.90	52.15	.....	54.35	90.90	2200	90	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Michelin Tire Co., Milltown, N. J.																						
Michelin Cord, non-skid	15.50	29.15	30.85	37.70	39.50	46.95	48.15	49.30	86.00	....	...	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Mid-Continent Tire Mfg. Co., Wichita, Kans.																						
Midco Cord, Universal	22.00	38.75	41.15	45.45	47.50	56.90	.....	59.00	92.50	2200	90	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Miller Rubber Co., Akron, O.																						
Miller Cord "Geared-to-the-Road"	16.45	.....	.....	39.50	41.50	49.10	50.15	51.25	78.05	....	...	113.85	....	...	146.65	....	...	236.25	....	...	330.00	....	...
Mohawk Rubber Co., Akron, O.																						
Mohawk Cord, non-skid	17.95	30.70	32.50	39.70	41.60	51.00	51.50	53.55	87.00	2200	90	121.50	3000	100	156.50	4000	110	.....	....	...	.....	....	...
Norwalk Tire & Rubber Co., Inc., Norwalk, Conn.																						
Norwalk Cord, non-skid	.....	.....	.....	.....	.....	.....	52.55	57.20	75.00	2200	90	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Para Belle Tire & Rubber Co., Mansfield, O.																						
Para Belle Grant Cord	17.60	.....	.....	.....	.....	.....	50.15	51.75	81.45	2200	90	.....	....	...	152.10	4000	120	.....	....	...	.....	....	...
Pennsylvania Rubber Co., Jeannette, Pa.																						
Pennsylvania Cord, non-skid	13.65	29.25	31.05	37.70	39.55	47.00	.....	49.30	76.45	2200	90	95.35	3000	100	134.95	4000	110	.....	....	...	.....	....	...
Perfection Tire & Rubber Co., Fort Madison, Ia.																						
Perfection Cord, non-skid	19.50	32.40	34.25	41.90	43.90	52.15	53.50	54.75	90.90	2200	90	121.50	3000	100	157.50	4000	110	.....	....	...	.....	....	...
Standard Fabrics	13.75	25.45	27.35	34.05	36.25	42.15	.....	44.75	.....	....	...	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Powertown Tire Corp., Rochester, N. Y.																						
Powertown Cord, non-skid	23.30	39.10	41.00	49.70	53.10	61.00	62.20	63.20	95.90	2200	90	128.25	3400	100	.....	....	...	.....	....	...	.....	....	...
Quaker City Rubber Co., Philadelphia, Pa.																						
Quaker Cord, non-skid	25.00	29.15	30.85	37.70	39.50	46.95	.....	49.30	85.00	2200	90	115.50	3000	100	.....	....	...	.....	....	...	.....	....	...
Racine Rubber Co., Racine, Wis.																						
Racine Multi-Mile Cord	14.65	29.15	30.85	37.70	39.55	46.95	47.40	49.25	78.55	2200	90	113.85	3000	100	146.65	4000	110	.....	....	...	.....	....	...
Republic Rubber Co., Youngstown, O.																						
Republic Grande Cord, non-skid	19.00	33.75	35.85	44.35	46.60	55.25	.....	58.00	82.65	2200	90	115.45	3000	100	148.70	4000	110	.....	....	...	.....	....	...
Samson Tire & Rubber Corp., Los Angeles, Calif.																						
Samson Super Size Cord, non-skid	18.90	33.90	35.85	49.40	52.60	61.50	63.80	65.70	85.00	2200	120	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Spreckles "Savage" Tire Co., San Diego, Cal.																						
Spreckles Savage Cord	.....	31.90	34.00	42.10	43.20	51.70	52.80	54.00	81.00	2200	90	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Standard Four Tire Co., Keokuk, Iowa																						
Standard Cord, non-skid	18.90	32.50	34.50	42.70	44.85	53.20	.....	55.85	85.00	2200	90	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Standard Tire Co., Willoughby, O.																						
Tiger Foot, non-skid	13.50	29.15	30.85	37.50	39.50	46.95	.....	49.30	.....	....	...	.....	....	...	.....	....	...	.....	....	...	.....	....	..
Star Rubber Co., Inc., Akron, O.																						
Star Meteor Cords	18.90	33.60	35.50	42.50	44.45	52.20	53.65	55.00	80.50	2200	90	112.80	3000	100	.....	....	...	.....	....	...	.....	....	...
Swinehart Tire & Rubber Co., Akron, O.																						
Swinehart Cord, non-skid	18.00	32.40	34.25	41.90	43.90	52.15	53.55	54.75	82.60	2200	90	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Syracuse Rubber Co., Inc., Syracuse, N. Y.																						
Syracuse Syra-Cord, non-skid	18.30	32.50	34.50	42.45	44.0	52.85	54.00	55.50	78.55	2200	90	113.85	3000	100	146.65	4000	110	.....	....	...	.....	....	...
Syracuse	16.75	29.15	30.85	37.70	39.50	46.95	48.60	49.30	.....	....	...	.....	....	...	.....	....	...	.....	....	...	.....	....	...
Thermoid Rubber Co., Trenton, N. J.																						
Thermoid cord, non-skid	.....	33.05	34.95	42.75	44.80	53.20	54.60	55.80	84.30	2200	90	117.70	3000	100	.....	....	...	.....	....	...	.....	....	...
Traveler Rub. Co. of Bethlehem, Bethlehem, Pa.																						
Traveler Cord, non-skid	16.20	29.15	30.85	37.70	39.50	46.95	.....	49.30	81.35	2200	90	.....	....	...	.....	....	...	.....	....	...	.....	....	...
United States Tire Co., New York, N. Y.																						
United States Cord, non-skid	.....	.....	.....	.....	41.55	.....	50.55	51.75	81.35	2200	90	117.95	3000	100	152.00	4000	110	.....	....	...	.....	....	...
Victor Rubber Co., Springfield, Ohio.																						
Victor Cord, non-skid	19.00	34.10	36.05	41.90	43.90	52.15	53.50	54.75	82.65	2200	90	.....	....	...	.....	....	...	.....	....	...	.....	....	..

NEW COMMERCIAL CARS

New Atlas Speed Truck Models Announced

THE Industrial Motors Corporation, the recent merger of the Atlas Truck Corp., York, Pa., and the Selden Truck Corp., Rochester, N. Y., announces two new Atlas Speed Truck models to be distributed by the Seldon Truck Corporation.

The Atlas line consists of two speed truck models, the Merchants' Dispatch model 22, rated at 1 ton, and model 44, rated at 1½ to 2 tons. Both models are equipped with Buda "M" engines, having a bore and stroke of 3¾ x 5⅛ in., respectively, and rear-axles and transmissions of own manufacture. Pneumatic cord tires on all wheels are standard on both models, 34 x 4½'s front and rear being used on model 22, and 36 x 6's, front and rear, on model 44. Wheels are of wood. The wheelbases are 130 in. and 146 in. and turning radii are 18 ft. and 24 ft., respectively.

The four cylinder, cast in block, removable type engine is suspended from three points and has an S. A. E. rating of 22.5 hp. and a brake horse power of 35. The 2⅛-in. crankshaft rotates in three main bearings of ample dimensions. They measure 1¾ x 2½ in., front; 2 x 2½ in., center, and 2⅛ x 3 in., rear. The connecting rod bearings are 1⅞ x 2 in. and the wrist-pin bearings 1 1-16 x 1⅞ in. Valves are located on the right side and are 1½ in. in diam. Engine parts are lubricated by the force-feed system.

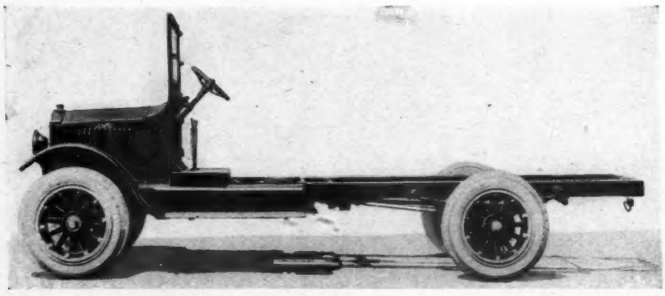
One inch Zenith carburetors are supplied from 10-gal. tanks, which are used in both models and ignition in model 22 is provided by the Atwater Kent system, while a Splitdorf magneto is used in the other model. The starter and generator is Bijur in model 22 and Atwater Kent in model 44. A 120-ampere Prest-O-Lite battery is used in both models.

Power is transmitted from the engine to the own make transmission through a Borg and Beck dry plate clutch in model 22 and through a Merchant & Evans clutch in model 44. The transmission, mounted in unit with the engine and clutch, is of the selective sliding gear type and provides three speeds forward and one reverse. The gears are of 3½ per cent nickel and the main bearings are of the double row ball type. Two universals are used in the lighter model and four in the heavier. They are of the all steel type. Final drive is through an Atlas worm axle. Total gear reduction in model 22 is 5 1-16 to 1, or 6 to 1; in model 44, 6 or 7 to 1. Torque and propulsion is taken through the springs.

The frame is suspended from four semi-elliptic springs. In model 22 the frame measures 4 x 2½ x 3-16 in. and the springs, 36 x 2 in., front, 46 x 2 in. rear. The model 44 frame is 5⅝ x 3¼ in. and the springs 36 x 2¼ in. front, and 52 x 2½ in., rear.

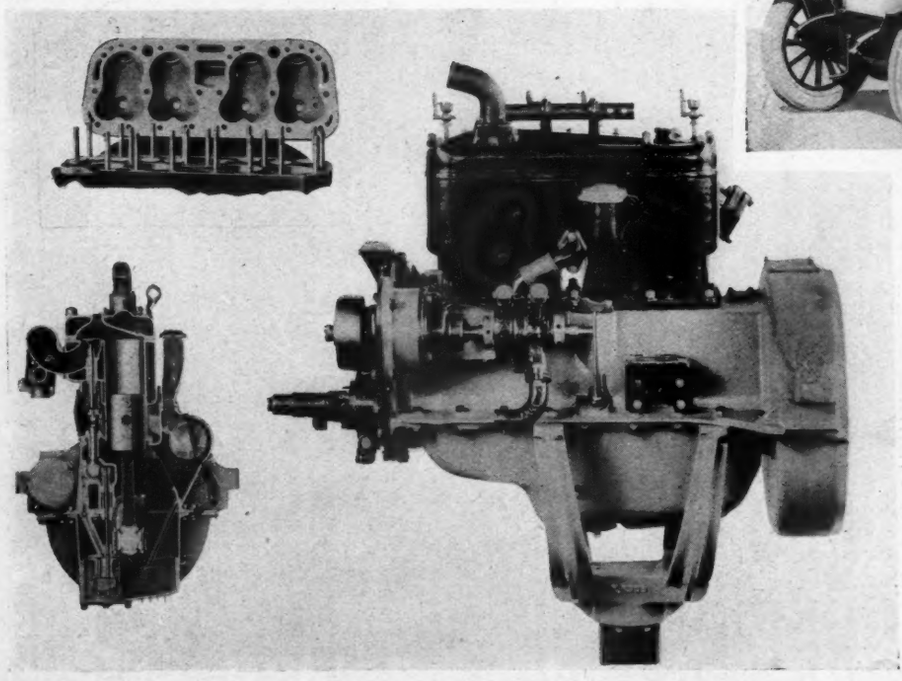
The steering gear is located on the left side and is of the worm and gear type. Both hand and foot throttle controls are provided. In model 22 the service brake actuates on the rear drums and the emergency at the transmission. In model 44 the order is reversed.

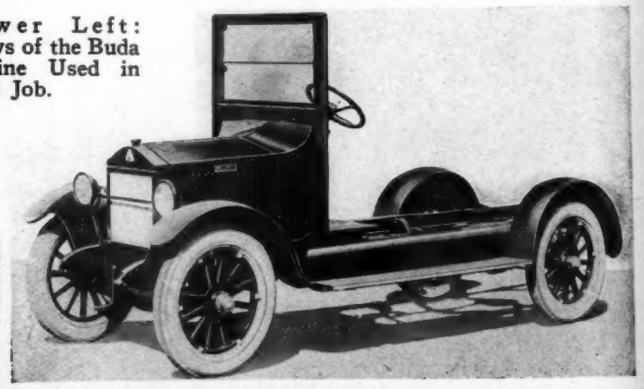
Standard equipment includes two head lights, one tail lamp, set of tools, jack, electric horn, Alemite gun, and tire carrier.



Left: Side of the New Atlas Speed Truck.

Lower Left: Views of the Buda Engine Used in This Job.





The Merchants Dispatch is Now Built in Two Capacities

650 Rural Counties Want More Trucks

A survey by County Agricultural Agents reports a need for more motor trucks in 650 counties. Georgia reports the biggest demand with 59 counties, Pennsylvania is next with 43.

Commerce Model 9 "Special Delivery" Makes Its Debut

THE new 1923, model 9, "Special Delivery" chassis, the latest offering of the Commerce Motor Car Co., Detroit, Mich., embodies in its construction, units which are nationally known and advertised, such as Continental engine, Salisbury spiral-bevel gear rear axle, Michelin steel disk wheels, Detroit Gear and Machine Co. three speed transmission, Bijur electrical system, Stewart vacuum feed, Zenith carburetor, and pneumatic cord tires. It is also pointed out that in view of the unusually complete equipment accompanying this speed truck, together with the calibre of units used in the assembly, the list price of $1150 f.o.b. Detroit is unusually reasonable.

This new model has a rated capacity of from three-quarters to one and one half tons, maximum speed of 40 m.p.h., turning radius of 25½ ft., and wheelbase of 127 in., with an allowable loading space of 98 in. from behind the driver's seat. Bodies and cabs of various descriptions are supplied with this model if desired as extras. The types include open express, flare board; open express, flare board with canopy top and full complement of curtains, convertible stake and platform, panel, and open and closed cabs.

The Continental engine is of the truck type, having four cylinders of 3¾-in. bore and 5-in. stroke. The crankshaft and camshaft are carried in three generous sized main bearings. Engine lubrication is by force feed and splash, having a capacity of 6 qt. The thermo-syphon system of cooling is employed and the radiator used is of the Commerce truck, cast tank type. Its tanks are fin cast and cores are removable. Capacity is 5 gal.

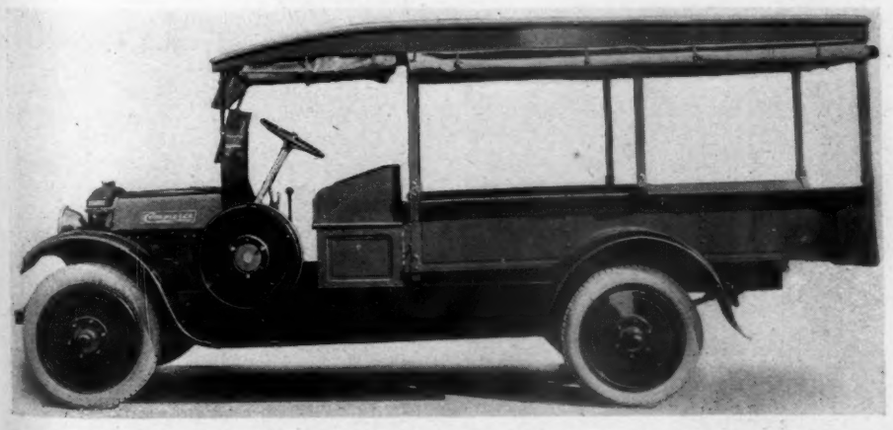
A Zenith carburetor, together with a Stewart vacuum feed system and a 15-gal. welded gasoline tank located under the seat, makes up the fuel transmitting system. Greater efficiency is claimed by reason of a hot air connection through a flexible metal tube from the exhaust manifold. The air control is mounted on the column. Ignition is by battery distributor. The electrical equipment further includes a Bijur starter and ball-bearing generator. The battery is a 6-80 ampere-hour, rubber threaded Willard.

From the engine the power is carried back through a cone type clutch, 14-in. in diam., having a readily accessible lubrication cup for thrust bearings, to a sliding gear transmission providing three speeds forward and one reverse. The gear-set is mounted in unit with the clutch and engine.

The propeller assembly consists of a tubular shaft of nickel steel equipped with two universal joints. Final drive is through a spiral-bevel, ¾-floating rear-axle, featured by the easy removal of its shafts and elimination of excess loads on bearings and tubes when rounding curves. The gear ratio is 5.87 to 1. The front axle is of conventional I-beam section. Both the emergency, which is of the internal expanding type, and the service of the external contracting type, actuate on 16 in. drums. Steering is through gear of the worm and split nut type.

The frame, which is flexible, of 4½ in. channel and braced by four lateral members, is suspended on four silico manganese, semi-elliptic springs. Front, 8 leaf, 37⅜ in. x 2¼ in.; rear, 10-leaf, 52 in. x 3 in. They are all bronze bushed and lubricated by oil cups.

The Michelin steel disk wheels are mounted on roller bearings and are equipped with 32 x 4½ in. non-skid, pneumatic cord tires, front and rear. The fenders, both front and rear, are full length running boards, dust shields and dust pans. The windshield is of the two-piece, ventilating, rain-vision type.



New 1923 Model 9 "Special Delivery" Chassis, Delivery Body Equipped

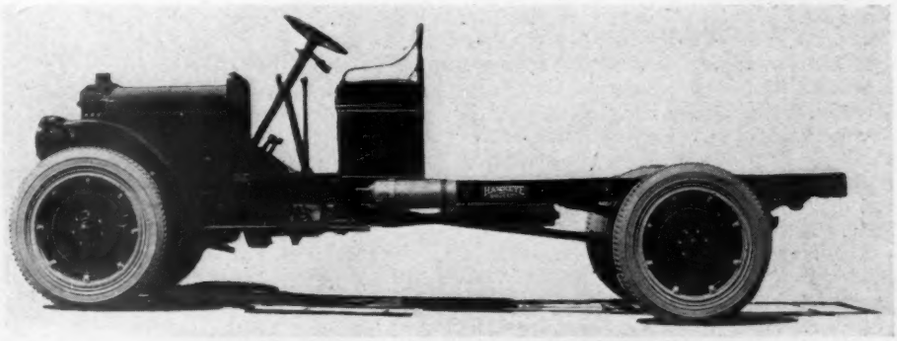
Hawkeye Offers New Speed Truck

THE new Hawkeye model O, one-ton speed truck recently announced, rounds out the Hawkeye Truck Company's, Sioux City, Iowa, line to five models. It now includes, together with the 1-ton, a 1½-ton, 2, a 3½ and a 5-ton model. The two last named models, however, are built on special order only. The three first mentioned models today list at $1375, $1645 and $2145, respectively.

The new one ton model is furnished with the following equipment:

Seat and cushions, front fenders, running boards, Presto head lights, oil tail-lamp, horn, jack and tools. It has a 136-in. wheelbase providing a loading space of 8 ft. 4 in. from behind the driver's seat to end of frame and a conventional 56-in. tread. The wood disk wheels have demountable rims and are equipped with 34 x 5-in. pneumatics, both front and rear.

The engine is a four cylinder, cast in block, removable head, and L-head type model MU Buda engine. It is suspended from three points. The bore and stroke is 3⅝ and 5⅛ in. respectively. The force feed system of lubrication is employed. A submerged gear pump circulates the lubricant. The cooling system includes a spring suspended, cellular radiator of ample water capacity and generous water



Side Chassis View of the New Hawkeye Speed Truck

jacketing, a centrifugal pump, and a belt-driven fan. Ignition is by an Eisemann high tension magneto. Carburetion is through a 1-in. Zenith carburetor having an automatic adjustment which compensates for any variation in temperature or altitude.

The controls consist of a Ross steering gear with left hand drive, central control, spark and throttle levers on quadrant on steering wheel. Carburetor choke on dash and foot accelerator.

From the engine power is carried back through a Fuller dry-plate multiple-disk clutch to a Fuller transmission providing three speeds forward and one reverse. The clutch and transmission are mounted in unit with the engine. This gear-set provides the following gear ratios: High, 6¼ to 1; intermediate, 10.8 to 1; low, 18 to 1; and reverse, 21 to 1.

A Hartford two joint propeller shaft carries the drive to a Clark model B-360, bevel gear rear-axle. The gear reduction is 6.28 to 1. All parts of the axle are readily accessible for repairs or replacement. Both the service and the emergency, which are of the internal expanding and external contracting, actuate on 16-in. drums mounted on the axle. Final drive and driving torque are taken through the springs. The springs are semi-elliptic, 52 in. long, 2½ in. wide, eleven leaves in the rear and 38 in. long, 2¼ in. wide and seven leaves in the front.

The frame is of 5-in. extra heavy channel steel and bottle necked, which construction permits a short turning radius.

A baggage and express rack at the back capable of carrying 1500 lb. can be supplied. The specially staunch construction of the frame of these bodies makes the use of this rack possible.

The standard equipment includes comfortable rattan covered Marshall spring type cushions, 34 x 18 in.; pullman curtains; six dome lights in the deck, one step light, two bullet lights in front, and two stop lights in the rear; heating arrangement, consisting of pipes running either down the center or sides and perforated metal pans; four adjustable ventilators in cowl and two N & L ventilators in the deck; standard street car advertising molding, and metal visor over the windshield.

Weatherproof is Making a New 25-Passenger Bus Body

THE accompanying illustration shows one of the ten motor coach bodies recently built by the Weatherproof Body Corporation, Corunna, Mich., for the Shore Transit Line, Incorporated, Salisburg, Md. These new bodies are mounted on a special bus chassis, 198-in. wheelbase, manufactured by the Commerce Motor Car Co., Detroit.

Some special features of these bodies are as follows:

Hardwood sills lying flat on chassis frame having an elevation of but 2½ in. from top of frame to inside of floor. The chassis frame is of special construction, having full width outriggers. These are necessary for this type of floor sill construction. Floor boards are fitted into floor sills without increasing the height.

A full bowed deck built of hard wood bows and basswood ceiling gives a height of 76 in. inside of the body at center and low deck at sides. This is stated to reduce center of gravity. The window frames are hard wood, top and bottom, and drop full length into the sides of the body. The sides are of steel.

The front of the body converges to a cowl which fits around the hood. This narrowed front is claimed to add to appearance, reduce wind resistance, increase driver's vision, and permit slanting windshield without reducing inside area of body.

Cushions with Marshall type springs and of special Weatherproof construction are used. Thickness of cushions around edges is 3 in., while an extension panned under center of seats increases thickness of cushions to 7 in. The thin edges prevent bulging and premature wear.

Weight is approximately 2850 lb., which with its low center of gravity is stated to be very light for a body of this character carrying 25 passengers.

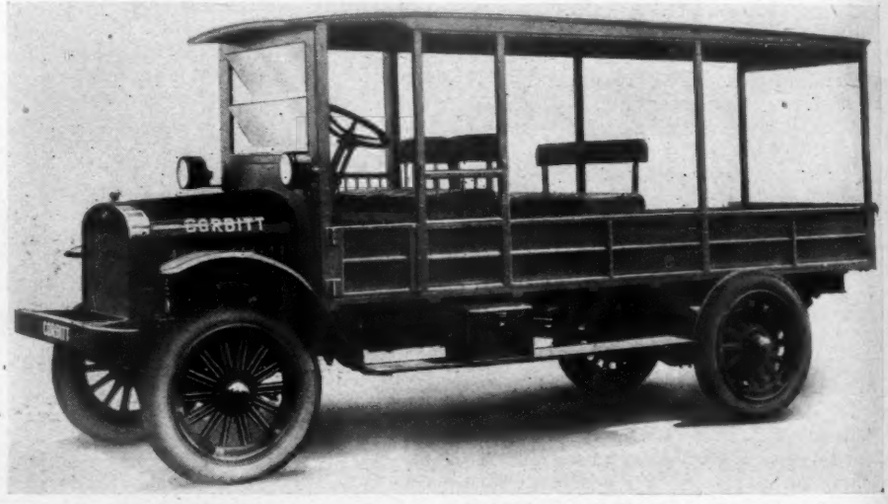
Showing the Specially Constructed Body Recently Built by the Weatherproof Body Corp.

Corbitt Adds New Speed Truck to Line

A new model, known as the Corbitt Speed Truck, and having a capacity of ¾ to 1 ton, was recently brought out by the Corbitt Motor Truck Co., Henderson, N. C. This new delivery type truck has a chassis weight of 3250 lb., with a body allowance of 800 lb. It is mounted on a 130-in. wheelbase chassis, providing 112-in. loading space behind the driver's seat.

The engine is a 3½-in x 5-in. Hershell-Spillman, removable head type, capable of developing 37 h. p. at 2200 r. p. m.

Although of small capacity, the truck is worm driven, employing the Sheldon units. Other units include Eisemann magneto, Stromberg carburetor, Brown-Lipe transmission and clutch, Hartford universal joints, Ross steering gear, Stewart-Warner vacuum tank, Dyneto starting and lighting system, Exide heavy truck battery, pneumatic cord tires, Alemite chassis lubrication and chrome vanadium steel springs.



New Three-Quarter to One-Ton Speed Truck Recently Introduced by the Corbitt Motor Truck Company

The clutch is multiple disk. The selective sliding gear-set is in unit with the engine. Reduction in the rear axle is 6 to 1 and in low speed, 20 to 1.

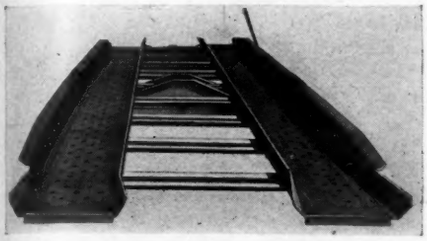
This company also furnishes any style of body and is featuring a specially designed "Carry-all" body suitable for farmer needs, which is furnished for $125. The price of the chassis is $1250 f.o.b. Henderson, N. C.

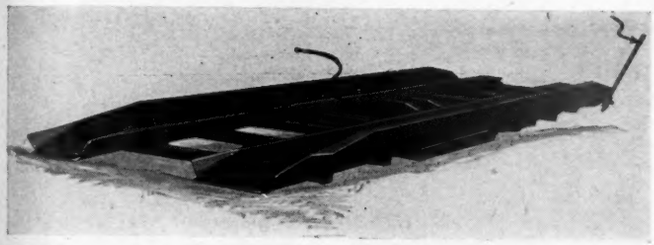
Freeman Turntable for Road Work

BEFORE the Freeman Mfg. Co., Racine, Wis., began production on its Turntable, it made a thorough investigation of material hauling for building concrete highways and turntables connected therewith.

This research caused the company to come to the following conclusions as to the requirements of a motor truck turntable:

A turntable should turn easily, and be enhoused so that dirt cannot get in and running oil out. The construction should be such that operation will not be affected by any irregularities in the road surface. It must be of a size to avoid interfering with the passing of teams, road scrapers, rollers, tractors, etc. So that a turntable can be turned easily while on an incline it must be self-balancing. In addition to being light, which is essential to permit of transportation by one truck, it must be ruggedly constructed to withstand the severe gaff and abuse incident to road work. It should also be of simple construction, containing no small parts to give trouble.





Views of the Freeman Turntable

Arrows in the lower illustration indicate the operating lever and the base, which has a bearing area of 3600 sq. in.

According to the above manufacturer these specifications have been met in its turntable, which is described as being self-balancing and self-lifting. It is self-balancing because a truck after running up the incline to the center automatically levels the carrying members. A balancing range of 24 in. permits of ready stopping of the truck. The turntable can be approached from any angle and can be left from any angle. As the truck is lifted on the incline high enough to clear the forms when turning, the turntable is properly termed self-lifting. The turntable is mounted on a base similar to a mudscow and is made entirely of steel. The base has an ample bearing area of 3600 sq. in. Both ends of the base are turned up to facilitate dragging.

It is one man operated. To operate one end is lifted so that the end toward the truck rests on the ground. When this end is lowered it remains down awaiting the truck. When the truck passes the first fulcrum the "run ways" tip level. The driver sees it, feels it and hears it click and applies the brakes. The turntable man pulls the lever down, which lifts a foot. He walks around on the subgrade pushing on the lever to turn the table. He stops at the right point so that the truck is lined up to back right to the skip.

The foot mentioned is for the purpose of preventing a careless driver who runs too far, from tipping the other end down and running off, which would necessitate backing on to the turntable again, causing a slight delay.

Patriot Announces a New Two-Ton Model

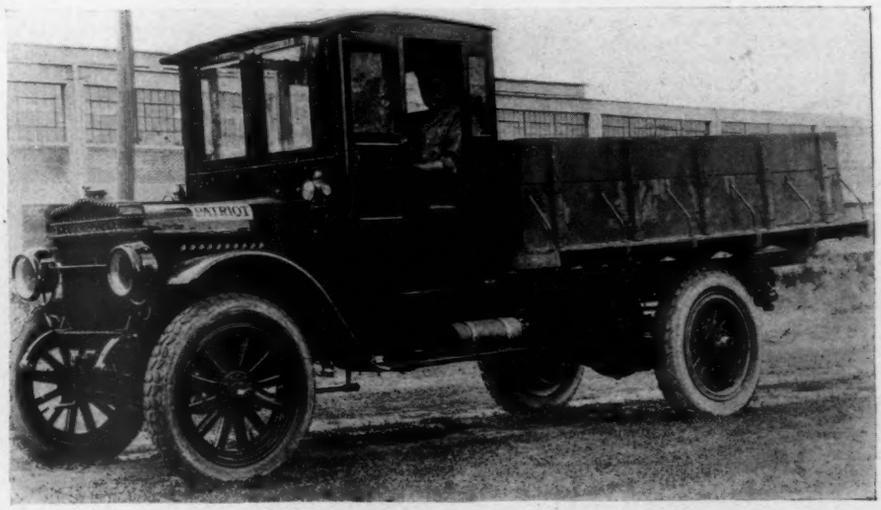
THE Patriot Manufacturing Co., Havelock, Neb., recently placed on the market a new 2-ton model rated from 20 to 25 m.p.h., and known as the LS-800 model. This new model has a 140-in. wheelbase, a 23½-in. turning radius and a standard gear ratio of 7.25 to 1. The chassis price is $2175 equipped with solid tires and $2425 if it is equipped with pneumatic tires f.o.b. the factory.

The engine is a Hinckley, model 400, having a bore and stroke of 4 in. x 5¼ in. Lubrication is by a force pressure system and cooling is by a centrifugal water pump. Fuel is fed to the carburetor from a 20-gal. tank located under the driver's seat through a Stewart vacuum tank and ignition is by a high-tension Splitdorf magneto.

From the engine the power is carried through a multiple-disk dry-plate clutch to a selective type amidship transmission providing four speeds forward and one reverse. The universal joints are of the Hardy-Thermoid type, there being two of these joints between the clutch and transmission and two between the transmission and the rear axle. Steering is through Ross gear.

The front axle is a drop forging of conventional I-beam section fitted with taper roller bearings. Four semi-elliptic springs, 40 in. x 2¼-in. front and 52 in. x 2½-in. rear, support the pressed steel, heat-treated frame. Final drive is through a Timken worm-drive rear-axle.

Standard equipment includes Prest-O-Lite headlights, oil dash and tail lamps, Stewart hand signal horn, jack, set of tools, driver's seat, front fenders and one-half running boards.



New Two-Ton Model Recently Put on the Market by the Patriot Mfg. Co., Havelock, Nebraska

Chicago Leads in Motorized Postal Equipment

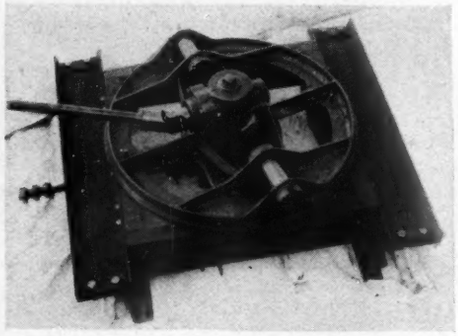
Seven cities in the United States have equipment in their local postal service of over 100 motor trucks. Chicago leads with 421. The others are: New York 318, Brooklyn (in greater New York, but having a separate post office) 125, Boston 193, Philadelphia 193, Washington 111, St. Louis, 108.

How One Concern Conformed to the Illinois Load-Weight Law

Also Description of Warner's Heavy-Duty Semi-Trailer

A BUSINESS firm in one of the largest cities in Illinois using more than one hundred and fifty 7½-ton trucks found itself up against the restrictions of the Illinois State Law.

It was carrying serious overloads, but the law limiting load weights was not strictly enforced within the city limits. The State Law outside of the city limits, however, was rigidly enforced. In consequence a large amount of the firm's business being beyond the city limits, the firm was repeatedly fined, and was in a measure helpless. The problem was how could it get the most possible service out of its heavy-duty truck equipment without violating the State Law. The State Law limited the total weight of a vehicle and load to 32,000 lb. with 16,000 lb. total weight over any one axle.



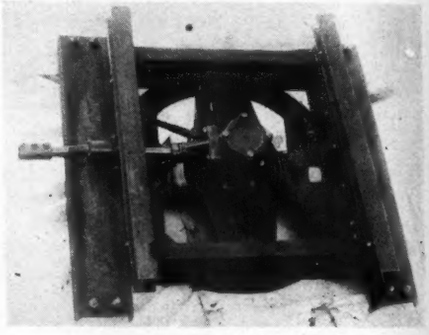
On account of the extremely heavy weight of the truck body and hoist, the company figured that on its 7½-ton truck it could haul a little less than 4½ tons of live load and remain within the law limitations of 32,000 lb., for the entire vehicle and load, and 16,000 lb. over any one axle.

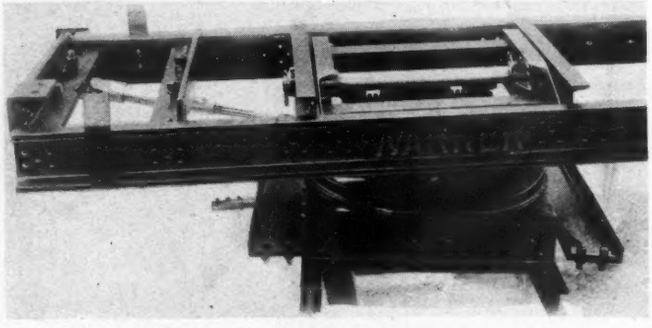
After much thought and figuring the engineers of the Warner Mfg. Co., Beloit, Wis., were permitted to investigate and study this unfortunate situation. Finally a solution was found. The engineers showed how by the use of semi-trailers it was not only possible to work out a load distribution that would permit hauling at least ten tons without violating the 16,000-lb.-over-one-axle legislation, but also how an additional 24,000 lb. total weight could be carried if a trailer with a separate axle and set of wheels not exerting more than 800 lb. weight per sq. in. of tire, was used.

In the early stages of the investigation a ten to twelve ton trailer was used, but this was later changed to trailers rated from fifteen to eighteen tons. The latter capacity trailers were finally chosen by the company. This choice meant that in sections where the law was not rigidly enforced a load of eighteen tons could be hauled, while in other sections the load could be cut back to ten tons total weight. With this flexibility the company was always enabled to carry an economical load, with the opportunity of making it still more economical should the conditions permit.

In brief, with an investment of approximately $2,000 entailing practically no other additional operating expenses, this company is now in a position to haul a minimum of ten tons live load, where formerly it was limited to 4½ tons of live load.

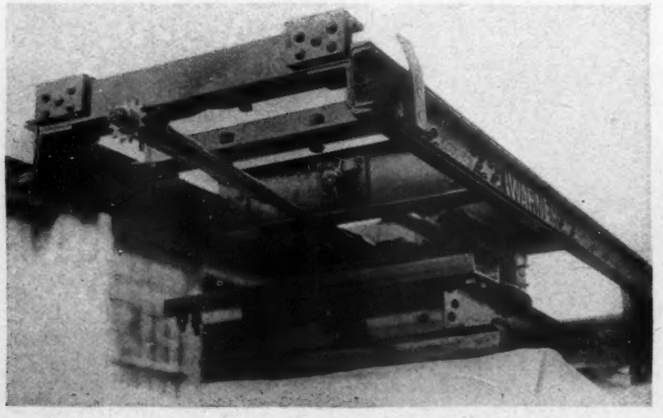
Looking at the proposition from the angle of road conservation, overload with this equipment is not as destructive as the action of just one over-loaded truck. This is explained by the liberal margin of tire surface afforded by trailer outfits.

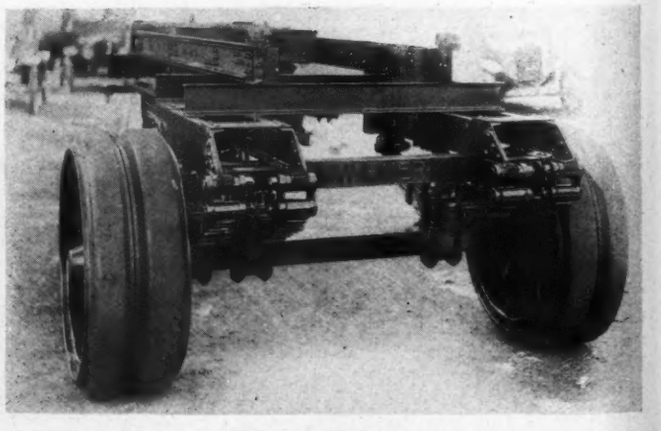




Another result of the investigation was the conclusion that the most efficient manner in which the truck power could be transmitted through the fifth wheel of the semi-trailer to the hoist would be by a mechanical hoist. A hydraulic hoist, however, could have been just as effectively used. A description of the outfit now employed by this Illinois concern follows:

From the power take-off of





Views Showing the Various Features of Construction Contained in the Warner Semi-Trailer

The two upper views show the fifth wheel mounting from above and below. The other views show various units of transmission and also special spring assembly

the chassis transmission, power is delivered to the lower shaft of the power transmission located in the fifth wheel through a sprocket and chain arrangement. From this fully enclosed gearset the power is then transmitted through a splined shaft, from which it is transmitted through another sprocket and chain arrangement to the hoist operating mechanism. Close examination of the accompanying illustrations will enable the reader to trace the power transmission from chassis transmission to hoist mechanism. The hoist is mounted at the front end of the semi-trailer.

The entire power transmission is described by the manufacturer as being substantially constructed and as having but nominal frictional surfaces. The gears run in a continual bath of oil and the shafts are mounted in roller bearings. The universals, which are of special construction are said to insure smooth operation of the shafts at any angles. Also, as may be noted, the splined or fluted shaft permits the necessary longitudinal action, elongating or shortening as the case may be.

The fifth wheel mounting is such that complete freedom of action of the trailer frame in its relation with the truck frame results. Freedom of action on two planes is permitted, thus giving universal action.

One of the New Units of Transportation Now Being Used by the Consumers Company, an Illinois Concern

Their trucks were changed to tractors and are now being used in connection with Warner semi-trailers

A double set of relief springs mounted within the fifth wheel is stated to eliminate any possibility of severe shocks upon the trucks itself, particularly the clutch and transmission.

The hoist operating mechanism is arranged in such a manner that the driver, without leaving his seat, can throw in or out the hoist at any one point. As the hoist reaches its maximum point of elevation, it automatically throws out until it is put into reverse action for bringing the body back into its lowered position. A jaw clutch and lever is provided at the driver's seat permitting the throwing in or out of the entire hoisting mechanism when the truck is on the road and the hoist is not required.

Sees Big Future for Specially Designed Bus

Wilson Bailey, general sales manager of the Trackless Transportation Corporation, makers of the Imperial Omnibus, in an interview with our field editor, expressed the opinion that the motor omnibus is in the same stage of development today as the truck was ten years ago when passenger car chassis were being pressed into service to do duty as heavy trucks and were failing in the job because they were not suited for it.

The first so-called omnibus in this country was a converted passenger car, but as the demand for this service increased, it was discovered that there was no passenger car chassis capable of handling the quantity of passengers it was desired to handle, and the result was that they rebuilt the truck chassis to do this work, much to the discomfort of many of the passengers who found that they were getting a safe ride, but certainly not a very comfortable one.

Trackless Transportation Corporation has been organized with a view to meeting a very serious need which is the comfortable as well as safe transportation of large numbers of passengers in one bus, and is meeting with great success in that respect, but they have been able to do so by reason of the fact that they have made a specially designed body for this purpose.

"There is a deuce of a lot of difference," said Mr. Bailey, "between dead freight and live freight and live freight certainly objects to being handled as dead freight." While it is true that the safety of the riding public is the most important factor in the bus business, its comfort and convenience is equally as important in the public's mind. At any rate, it is unsafe to endeavor to carry large numbers of persons on passenger car chassis and it is uncomfortable to carry a large number of persons on a truck chassis, and the only thing to do for the combined safety and comfort is to make a specially designed vehicle for the particular purpose.

The business of this company is selling trucks to transportation companies for their smaller operating feeding lines and also selling trucks to the truck and passenger car dealers who see the opportunity for the inauguration of small lines between busy points. Mr. Bailey believes there is big opportunity for the dealer in work of this sort.

This company, while it has not been in business very long, has brought the best experience to bear on the solution of this problem and the product enjoys the endorsement and support of the City of New York which is using a number of their cars in Staten Island and elsewhere throughout the metropolis. Their customers already include school boards and hotel and industrial organizations and commercial enterprises built up along the line of traveling stores.

One Truck a Day

The Swenson Auto Co., of Denver, distributors for Colorado, Wyoming and New Mexico, report to Transport Truck Co., of Mount Pleasant, Mich., that its sales of Transport trucks have averaged one a day. The Swenson Auto Co., asserts that a still bigger truck business is in sight.

Making a Stationary Concrete Mixer Portable With a Truck

In order to overcome expense and difficulty in the local transportation of his concrete mixer, Stanley Carman, masonry contractor of Woodmere, Long Island, conceived the idea of mounting the mixer on his FWD truck. As soft ground is frequently encountered in traveling to aid from various jobs, Mr. Carman equipped the front wheels with 10-in. flanges and the rear with 12-in. flanges. Since this outfit was first put into operation not only was much of the moving time between jobs considerably reduced, but it also permitted the placing of the mixer at most advantageous locations.

TRUCK EQUIPMENT AND APPLIANCES

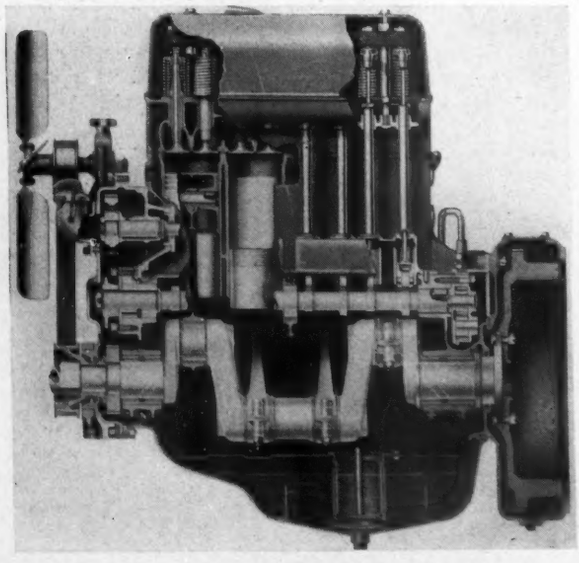
Midwest Introduces Three New Engines

NEW among recent engine developments are the three engines developed and manufactured by the Midwest Engine Corporation, Indianapolis, Ind. One, Model 411, is a 3⅝ x 5 in. engine with thermo-syphon water circulation; Model 412, 3⅝ x 5 in., with water pump, while the other is Model 410, 3⅜ x 4½ in.

These engines are somewhat different in design from other commercially made engines, in that they are designed along the same lines as engines used in some of the highest priced cars.

While there are some radical departures from conventional design in the Midwest product, they are all proved features which distinguish it from other engines commercially available.

The bearings are exceptionally large, with neither shims nor oil grooves. All bearings are from .003 in. to .005 in. larger than the shaft and cam shaft, this clearance providing for an oil cushion which eliminates approximately 50 per cent of the internal friction usually found in engines using tight bearing fits.



Cutaway, Showing Internal Mechanism of the New 3⅜ x 4½ in. Midwest Engine

The crankshaft in the Model 410, speed truck engine, is two and one-quarter inches in diameter.

As the engine speeds run up to 3000 r.p.m. on the 410, it will be appreciated that lubrication plays an important part in the design. To meet the necessity of lubricating the large diameter bearings at such speed, it was found necessary to "float" them and this was accomplished by making the bearings larger than the shafts and using no shims or oil grooves in the metal. The oil is continually forced into all bearings in extreme volume and under high pressure when under load.

The engines are of the valve-in-the-head type, the valves being made of alloy steel. In the 3⅜ x 4½ in. model they are 1 9-16 in. in the clear, lift ⅜ in.

Water circulation on the Model 410 is thermal circulation only. Cold water is first conveyed direct to the exhaust valve seats through passages cored in the cylinder block and head.

The super-cooling provided allows an extremely large volume of water to circulate about the head and cylinders, which keeps the temperature of the engine within such limits that high compressions are used. In Model 410 compression is 95 lb. As the fuel in use becomes heavier and more difficult to handle in the average engine it has been Midwest practice to increase compression in order that the heat generated by the higher compression could be made use of in handling such heavier fuel to better advantage and, because of that, get a still greater economy in fuel consumption.

The lubricating system used in all Midwest engines may be termed a constant delivery type. The oil is delivered to every bearing in the engine, except to the wrist pin bearings, continuously and under pressure, regulated in proportion to the "load-on," instead of "speed-of" the engine. This method provides lubrication when needed. The regulation is by means of a by-pass valve located over a groove around the front bearing, this valve being operated by the vacuum in the intake manifold above the carburetor throttle. The crankshaft is drilled with a continuous passage for oil from the center of the front bearing to the center of the rear bearing. Oil is taken from the sump by geared pump and forced into the circular groove around the rear bearing, from which it enters the crankshaft no matter in what position it may be, the oil from that point passing through the shaft, in large volume and at high speed, to all bearings continuously. There is no time when oil is not being forced into the connecting rod bearings.

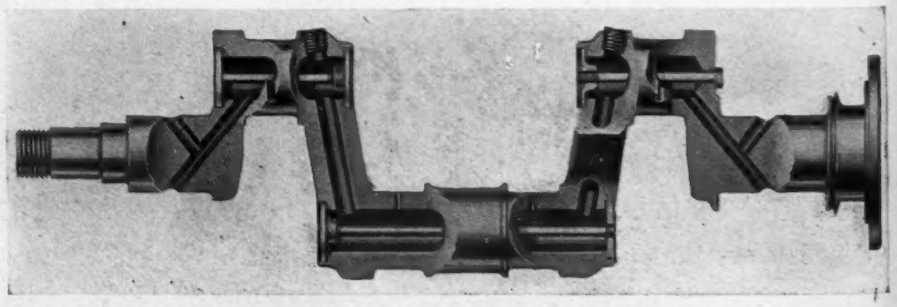
The oil, on reaching the front bearing, is allowed to escape into the gear case cover from under the by-pass valve when the pressure is greater than 50 lb., or when the vacuum is greater than the spring tension which normally holds the valve closed.

The camshaft bearings are lubricated by passage leading from the main bearings to each camshaft bearing. The piston pin bearings which are carried in the piston, the pins being locked in the rods, are lubricated by oil scraped off the cylinder walls next to the water jacket where the lubricant has a high lubricating body, instead of taking it from the inside of the piston head chamber where its value has been reduced because of the excessive heat at that point. The lower side of the bottom ring is used to scrape oil from the cylinder wall and from a point directly over the bearing a lead carries the oil under the ring direct to the top of the bearing—the point of highest pressure.

The sides of the pistons are slightly relieved so that a large amount of oil is available for this purpose.

By locking the wrist pin in the rod and putting bronze bushings in the piston, greater bearing area is obtained. As the bearings at that point carry the highest bearing pressures per square inch of any bearings in the engine, it is essential to provide as large areas as are possible and supply them with a large volume of the best lubricant possible to put into them.

The engines are entirely enclosed and dust is prevented from entering except



The Camshaft is Drilled With a Continuous Passage From Front to Rear Bearing

through the carburetor. An efficient air cleaner would complete the job. The breathing is done through the tubes enclosing the push rods, the oil vapor and spray being carried up into the valve chamber, thus lubricating all valve stems, rocker arms and contacts. The rocker arms are designed to "rock" at all points of contact instead of having journal type of bearings.

All valve adjustments are made from overhead, a lock nut and adjusting screw being used, these being carried in a bar running across the head from end to end. By removing the valve cover the valve adjustments are easily made, with plenty of space to work in, and without danger of being burned by contact with hot manifold.

The wedges and sleeves are of Molybdenum steel, case hardened. The web of the wheel is hollow and made from criss-cross corrugated steel plates, assembled at 60 degree angles to each other. They are free arc welded at intersecting surface contacts. The flat outer plates are welded to corrugated plates, providing a bridge construction of lightness and strength.

In this wheel, it is pointed out, the load is equally carried throughout the circumferential area of the wheel, regardless of point where load weight is initiated, each respective bridge section carrying its respective load portion.

on spring is desired, the same can be readily accomplished by removing the dust cap, and tightening auxiliary spring adjusting screws.

There are only two moving parts in the wheel, the laterally sliding sleeve and the longitudinally deflecting rim and tire. This, together with the use of only one helical spring and the wedge elements, makes for simplicity in construction.

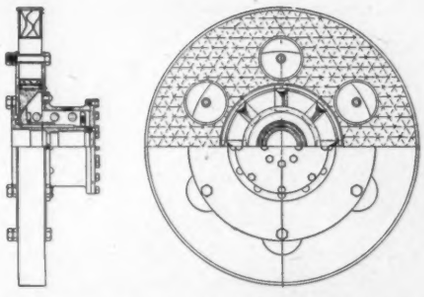
Within the housing space 3 or 4 lb. of dry flake graphite is retained by felt rings held within recess grooves on wedge ring, which is a fixed part of rim. This is claimed to provide a perfect self sealing lubricant, good for many thousands of miles without attention. A pipe plug in hub housing is provided for introduction of more graphite when necessary. This compartment also becomes wholly water tight after a few miles of running.

A full 1½-in. deflection anywhere within a 360 degree circle or 3 in. overall deflection is claimed for this wheel.

Stopshok Resilient Wheel for Commercial Cars

STRICTLY speaking, the Stopshok Wheel, manufactured by the J. F. Davis & Sons Co., Harris Trust Bldg., Chicago, Ill., is not a resilient wheel, in the usual sense of that term. It is a wheel provided with all the normal rigidity of all steel construction, floatingly mounted on a resilient bearing. The rim and tire constitute the only unsprung weight of a vehicle equipped with this wheel. One helical spring, encircling the hub on which a laterally slidable sleeve is mounted, backed up by the one spring, include the sole resiliency providing elements of the wheel.

As the illustration discloses, 45 degree cylindrical male wedge elements fixedly mounted and annularly arranged on the rim, mesh in the female wedge depressions on sleeve. The male wedges on rim, eight in number, enable at all times 3 or more constant coacting mesh contacts with sleeve. In this manner automatic primary compression of a vehicle suspension spring, by the drive, in accordance with all load variations imposed on the vehicle, is achieved.

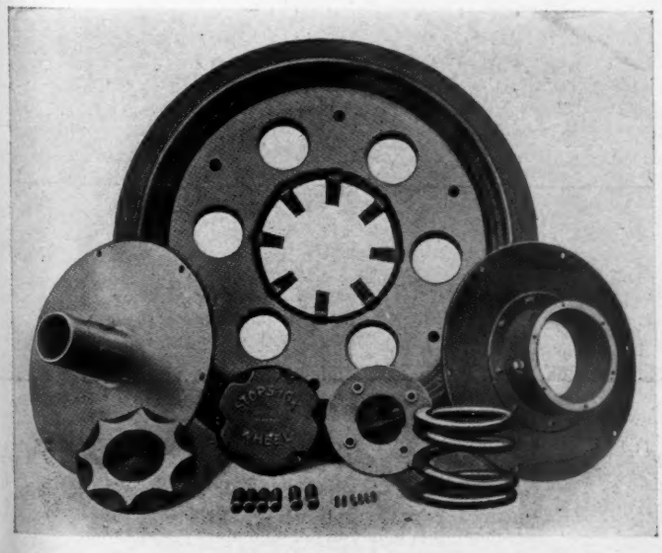


Mechanical Views, Which Show the Principle of the Stopshok Wheel

A 25 per cent excess setting of the spring, together with an additional automatic compression by drive, establishes an automatic resiliency range which correctly adapts this wheel for every load variation.

If, however, an extra high compression

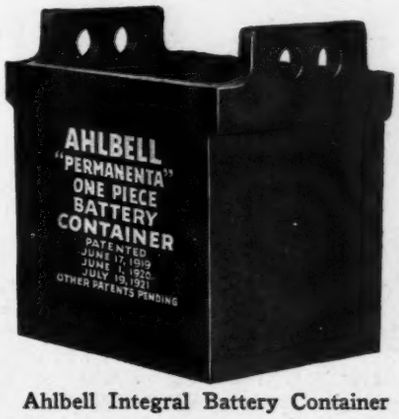
Lower: Complete Disassembled View of the Stopshok Wheel.



This Wheel of All Steel Construction is Described as Being Floatingly Mounted on a Resilient Bearing

Integral Container for Battery Elements

The Ahlbell Battery Container Corp., Waukegan, Ill., is marketing a new type of battery container designed to supplant the wooden box and hard rubber jars



Ahlbell Integral Battery Container

now almost universally used in the construction of batteries.

It is made of an impregnated fibre composition that is described as being non-breakable, leakable, conductive, impervious to acid and not affected by temperature or climatic conditions. The handles are integral, being molded as a part of the container. The cell compartments and the outer case are molded in one piece to the standard S. A. E. sizes so that any standard size plates, separators, covers, etc., may be used. The maker claims exceptional long life for this container and also for the elements. It is made in various sizes to fit different types of batteries.

Leece-Neville Starting and Lighting System for Buses

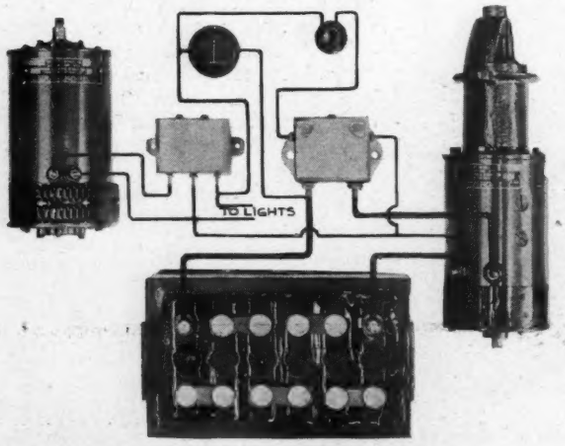
The Leece-Neville Co., Cleveland, O., has developed lighting equipment suitable for use on motor buses, motor rail cars and motor transportation vehicles, in fact wherever the current required for lighting is greater than that which the ordinary automobile type of generator is capable of supplying.

The motor bus of today, as a public utility, is rapidly attaining the plane of the street car as all established requirements are being met. Patrons of these carriers, among other things, demand illumination equal to that which they are accustomed. This illumination must be sufficient for reading purposes.

It is, therefore, necessary for motor buses to have a lighting load of from 200 to 350 watts. If a storage battery only was used, a discharge equivalent to from 200 to 350 watts would make it necessary to replace the discharged battery with another fully charged every two or three days, unless an exceptionally large battery was used, which would not only increase the cost of maintenance, but would also add unnecessary weight.

The equipment developed by this consists of a generator capable of delivering a maximum current output of from 250 to 400 watts and a compensator which permits the generator to charge only at a normal or low charging rate through the daylight running period and to deliver its maximum charging current when the total lamp load is turned on. The generators are built in two sizes: One has a maximum current output of 250 watts; the other is a 400 watt machine.

The generators are designed for engine drive and the connections to the compensator are made by means of wires encased in a sleeving. These wires cannot be connected wrong, as the terminals are so arranged on both the generator and compensator, so that they can be connected in the proper manner. When in operation through the daylight running period, there is a fixed resistance in the field circuit of the generator. As soon as the lighting load is turned on, the current used passes through a coil, which, when magnetized by this current, closes an armature, thus short circuiting around the resistance and permitting the generator to deliver its maximum charging current for which it has been set. This setting, having been predetermined by the lamp load, is such so that with all the lights burning a small amount of current will still be fed to the storage battery. This surplus current is sufficient to take care of the lights when the car is stopped and the engine not running, or when it is running below a charging speed.



Leece-Neville 12-Volt Electric Starting and Lighting System for Motor Trucks

By use of this type of equipment, a smaller size storage battery than would ordinarily be required, will be, it is stated, found advantageous and economical. The life of the electrical equipment is also prolonged as the generator is working at its maximum rating only during the period when the heavy load is required. The generator is a third brush regulated machine, this principle of regulation having long been employed by the Leece-Neville Company. The compensator, resistance and reverse current relay are encased in a single housing which can readily be mounted on either side of the dash board of the car.

Feltbak Transmission Lining for Fords

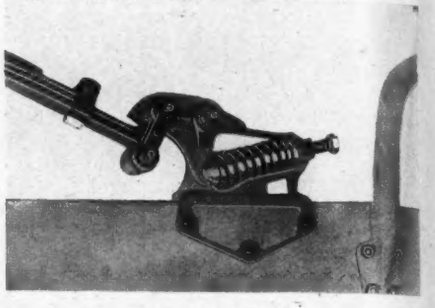
The Advance Automobile Accessories Corp., 1721 Prairie Ave., Chicago, Ill., has developed a transmission lining that is claimed to eliminate harshness from the Ford braking action. Its patented construction is illustrated herewith.

Feltbak Transmission Lining for Fords

The long fibre cotton fabric of this brake lining has inserted down its entire length at close intervals, cork disks which have oil holes. These holes retain and supply oil. The whole band is backed with felt of a very high quality. This construction is said to equalize the brake pressure around the entire band, insuring smoothness in starting and stopping. Besides cushioning the action, the felt acts as a reservoir for oil splashed up by the flywheel. When braking pressure is applied, the oil flows through the oil holes onto the surface of the lining. This continuous flood of oil is said to come right when it is needed—during the braking actions. It also prevents burning or glazing of the surface of the lining. Retail price, $2.75 per set.

Mueller Cushion-Type Shock Absorber

A new appliance, known as the Mueller Cushion-Type Shock Absorber and manufactured by the Mueller Engineering Co., Scranton, Pa., is now available that will materially absorb the shock of rough going. It is of simple and sturdy con-



A New Device Designed to Absorb the Shock of Rough Going

struction, easily applied and maintained. General truck repair is said to be reduced by its use, because of the elimination of constant road pounding which eventually has its effects on every unit in a truck. This pounding sets up vibrations which are distributed throughout the entire construction of the truck, causing the crystalization of the metal in the different units, thus weakening them to the extent of breaking. This absorber is claimed to eliminate a great percentage of such destruction by preventing a continuance of the trouble at the source.

The cushioning qualities of this absorber are stated to be of particular value in vehicles used as auto-buses, mail trucks, ambulances, patrols, and explosive-carrying vehicles.

Johnson Fare-Box for Buses

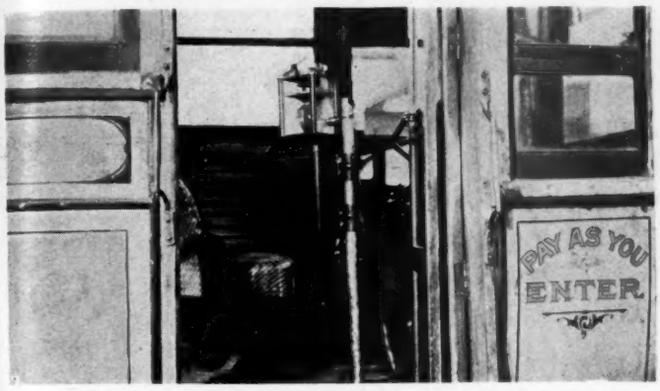
The Johnson Fare Box Co., 703, 366 Madison Ave., New York City, which has been manufacturing and selling fare boxes for the past thirteen years to street railway properties throughout the nation, since the advent of bus operators, has been specializing on fare boxes particularly adapted to the requirements of a bus. To withstand the vibrations of the bus this company has designed a special case with reinforced mountings, making the bus fare-box a sturdy piece of equipment. The company claims that wherever the fare box idea had been taken over as standard equipment, which idea is being more and more universally accepted by the larger operators, each case has shown an increase in receipts per day per bus over hand collection.

In view of the one-man feature of bus operation the fare-box is stated to make for an efficient system of fare collection, a system which assists the driver to load quickly, eliminating the handling and registering of fares and removes the personal element in discrepancies, also personal losses. They not only perform the services of a collector, but act as a guardian of receipts as well.

This box, which sells at $62, f.o.b. Chicago, counts nickels, pennies and dimes, returning the change to the operator for

change making purposes. It also makes possible determination of the exact earnings per mile per bus. The time saving and theft and mistake protection features lie in the fact that the passengers themselves deposit the exact fare.

The top of the standard box for use in buses has a top that will receive all coins or metal tickets up to a diameter of .900 in. The cases are of black enamel steel or copper finished in statutory bronze. Mountings are optional, being either on the back or left side, or back and left side. For standard 1-in. or 1¼-in. pipe, either solid or half round sockets are furnished. Flat back sockets for mounting direct on the bulkhead are also furnished if desired by the customer. Although handles on front and back or sides can be furnished, they are not recommended as they increase the liability of damage to the box. Shipping weight is 51 lb.; net weight, 32 lb.; and dimensions, 7½ in. x 7½ in. x 19 in.



Showing How a Johnson Fare-Box Mounting Controls the Entrance

Johnson standard fare boxes are furnished in three types. Type D is for cash fares only, recording in dollars and cents, or fare units on one cyclometer. Type DM-2 registers cash fares on one cyclometer and metal tickets of one denomination on a second cyclometer. Type DM-3 registers cash fares on one cyclometer and metal tickets of two denominations on a second and third cyclometer. The prices are $100, $115 and $120 net, f.o.b. Chicago.

Sealing irons for sealing mechanism and hand punches for removing seals are furnished as extras, at $5.50 net f.o.b.

Hete-Pruf Piston Ring

The Hete-Pruf Piston Ring, made by the Leeseberg Machine & Mfg. Co., Fostoria, O., is constructed from an individual casting of special analysis iron. It is featured by a long step joint and quick seating face. It is rough machined on all surfaces, split and then subjected to a series of heat treatments which remove all strains that have been set up in the castings during the cooling actions of the metal. After the finishing machine operations, the ring is again heated to a temperature of from between 500 and 600 degrees F. It is then light tested as a final check to prove that this temperature does not distort. This process is said to result in a ring that will maintain its tension in the engine no matter what temperature the engine may develop.

Hete-Pruf Piston Ring

Hete-Pruf rings are made with or without oil grooves, as desired. The list price is $.60 for sizes up to and including 3 15/16 in. in diam.; and $.70 for sizes beyond and up to 4½ in.

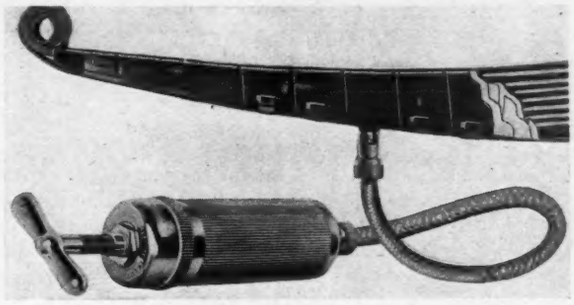
New Alemite Lubricating Spring Cover

The Bassick Mfg. Co., Chicago, Ill., recently developed a new type of spring cover designed to protect the springs and provide means of keeping the leaves lubricated without the need of dismantling the leaves, shackles and clips.

Known as the Alemite Lubricating Spring Cover, it completes the Alemite High Pressure Lubricating System.

The device is an all-metal spring lubricator and protector. It forms a noiseless flexible armor of lead-coated, non-rusting steel in which the entire spring works in a bath of lubricant that penetrates between the leaves.

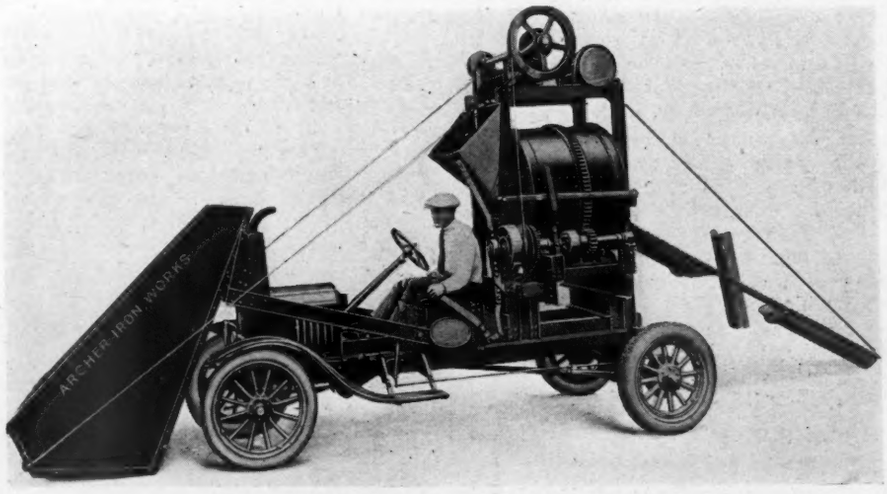
Being equipped with Alemite fittings it is easily filled with the Alemite High Pressure Compressor and Hose. The cover is claimed to exclude all water, dust or grit. This feature together with the lubricant bath, prevents rust and friction.



New Spring Cover for Protecting Leaves Offered by Bassick Manufacturing Co.

Trucks Popular With Florists

The motor truck has become a great value and assistance to the concerns that make up the New York City flower market. This direct means of transportation from the nurseries to the city markets afforded by the truck saves much valuable time. The factor of time is especially important in the shipment of delicate cut flowers, which must be handled with the greatest care and protected from the changes of temperature.



View of the New Archer Ford Paving and Building Mixer Mounted on Ford Truck Chassis

This outfit, manufactured by the Archer Iron Works, Western Ave. and 34th Place, Chicago, Ill., is designed to solve the problem of the road contractor working on small paving contracts. Power for operation of mixer is taken direct from the Ford engine at practically the same low cost of operation. One of the features is that the outfit can be easily moved on the job as fast as working conditions require. The mixing drum is a standard Archer 7-S One-Bag Mixer, giving a fast and thorough mixing action. The lifting arms of the side loader permit the loose materials to be held at the mouth of the loading hopper, ready for immediate discharging into the drum itself. The prices range from $800 on the Low Charging Mixer to $1200 on the Archer Ford Paving and Building Mixer. These prices include the Ford truck equipped with the mixer complete.

SERVICE AND REPAIR DEPARTMENTS

Semi-Annual Service Convention Approved

Many Pertinent Subjects to be Discussed. The Event Will Take Place at Chicago, November 14th and 15th

By C. P. SHATTUCK

At a meeting of the service committee of the factory service managers, N. A. C. C., the last week in September, it was decided to hold the semi-annual service convention in Chicago, Tuesday and Wednesday, November 14 and 15. From the program which is still in its formulative stage, it is evident that the convention will be the best yet held as three very pertinent subjects will be presented and discussed. These are: The Car Owner's Viewpoint on Service; The Dealers of Sellers; The Manufacturer's Viewpoints.

The owner's viewpoint will be presented by a prominent man whose experience with cars and service, dates back to the automotive pioneer days. Factory service problems will be presented by an authority on this subject. Considerable time is expected to be devoted to the subject of Service Association Work as well as to its importance. Another subject will be "How Service Associations Can be More Effective.

Invitations are to be sent to secretaries of the various dealer and trade associations of the cities not having a service association to attend the convention on the second day when the three main subjects will be presented and discussed. Secretaries of service associations, including those which are divisions of the dealer association will be admitted to the meetings of the second day.

Factory Men to Push Service Movement

One of the results of the service committee was the unanimous decision of the members to promote associations in cities not represented. To accomplish this, it is very likely that the country will be zoned, each member of the committee to give his personal attention to the organization of associations in a particular zone. With this plan, and the factories co-operating, a large number of new associations should result. While the service association movement has grown steadily there are a number of cities, and not small ones either, where there are no associations. The failure to organize may be said to be largely due to the fact that the dealers, the employers of the service managers are not sold on the advantages of the plan. Hereafter these dealers, and associations of dealers, are to be acquainted with the fundamentals of the service association, for whenever this has been properly done an active association has always resulted.

Why Associations Do Not Grow

In the advance proofs of the Service Bulletin issued by the Service Division of the N. A. C. C., Secretary Cobleigh in an article dealing with the progress of service associations, points out one of the factors retarding the growth of associations. He says:

"The service association movement is assuming large proportions and is bound to be of very great account in the general betterment of service to truck and passenger car owners because it is accomplish-a work possible in no other way, inasmuch as it embraces a field much of which is beyond the influence of either truck or car factories or dealers, namely, parts and equipment service stations, independent repair shops and garages.

"In certain cities it is the unwise practice to restrict the meetings of these associations (or generally they are service divisions of automobile dealers' associations) to the employes of truck and car dealers. This is shortsighted to say the least. Our prime concern being the owner, we should strive in every way to give him better service, and this we cannot do unless we make every possible agency to which he may have to turn for service as good as possible.

"Another point to be remembered is that the **independent repair shop or garage is very often a future dealer,** for these people if they give the right kind of service, grow and prosper, and when they do they generally take on a line of cars and trucks. So we are helping ourselves if we help educate them even before they enter the dealer field. * * * Acquaintanceship is a great thing for co-operation and co-operation is a great thing for progress. We stand in our own light if we do not admit everyone to these service station or service division meetings that could secure benefit therefrom. * * * There would be no trade association of any kind if all business folks refused to associate with their competitors."

The article hits the nail on the head. If better service is to be developed, if the attitude of the owner is to be changed towards the service station, if we expect to sell the owner the idea that the service station is there to give him a square deal, it cannot be accomplished by the dealer service association alone. If service is to be placed on the high plane it deserves, it will be because every dealer service station, independent service station, garage and repair shop is welded into one big service organization serving the public. If we expect to change the attitude of the public towards repairs there must be co-operation among those who serve.

Those service associations which lean towards exclusiveness, confining their membership to dealer employes only, will never be 100 per cent successful.

It is noticeable that the service associations which admit to associate membership, heads of equipment, etc., companies, have a large membership and are flourishing. New York, Brooklyn and Newark are examples of successful associations.

Plans to Aid Associations

Service associations are to be given active co-operation by the service division of the N. A. C. C., a bureau of speakers having been arranged by Secretary Cobleigh. They include speakers on general and special subjects and on proper servicing the equipment they represent. The last named include representatives from the American Bosch Magneto Corp.,

Biflex Products, Borg & Beck, Continental Motors Corp., Dayton Engineering Laboratories Co., Electric Auto Lite Corp., Stromberg Motor Devices Co., Timken-Detroit Axle Co., Willard Storage Battery Co., Wire Wheel Corp. of America, and Tide Water Oil Sales Corp. Dale P. Cartwright, New York branch, North East Electric Co., and G. S. Radley, Oakley Chemical Co., N. Y., are speakers on electric and cleaning service. On general subjects the following are available: G. W. Brogan, Black & Decker Mfg. Co., subject, "The Well-Equipped Shop Gets the Business;" R. B. Perry, general sales manager, Atlas Brass & Foundry Co.; Joseph P. Gorey, president, Gorey Auto Parts Co., New York City; Clyde Jennings, managing editor, Motor Age; and C. P. Shattuck, field and technical editor AUTOMOBILE TRADE JOURNAL, and COMMERCIAL CAR JOURNAL. A number of the speakers are equipped with lantern slides to illustrate the high spots in their subjects. A number of films are available to the service associations also. It is very probable that the list of speakers will be augmented from time to time. The services of speakers can be secured by applying to Secretary Cobleigh, National Automobile Chamber of Commerce, New York City.

Reo Auto-Bungalow Possesses Hotel Conveniences

TO meet the steady demand for the auto-bungalow type of equipment, the Reo Motor Car Co., of California, San Francisco, Cal., has designed a standard model, fitted to the Speed Wagon. This Reo Auto-Bungalow has a very pleasing appearance, resembling somewhat an up-to-date motor bus, and is capable of a road speed of 30 to 35 m.p.h. It handles as easily as a sedan, and is capable to negotiate mountain roads or any place where any other motor vehicle can go safely.

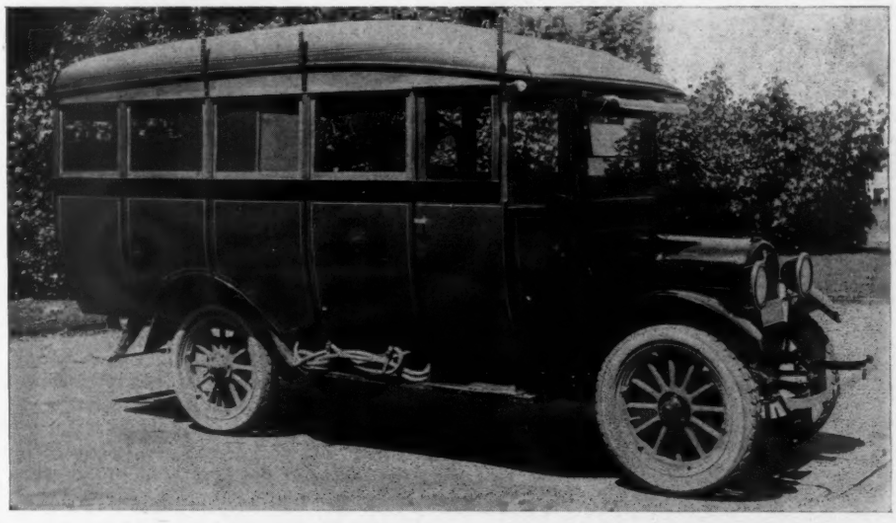
The bungalow body is mounted on a 128-in. wheelbase Reo chassis. The height is sufficient to allow the occupants to stand erect inside. Airplane spruce is used largely in the construction, to prevent the super-structure from being top-heavy.

The interior equipment includes the following: Writing desk, combination buffet and ice chest, Ottoman bed of pullman type, clothes closet, gas stove, white enameled sink with closet for cooking utensils, hot and cold circulating water, toilet, two revolving portable leather-covered chairs, portable collapsible dining table, clock, rear-view mirror, floor covered with battleship linoleum, nickel-plated and glass hardware, opaque curtains and interior portiers, insuring privacy, two dome lights providing sufficient illumination.

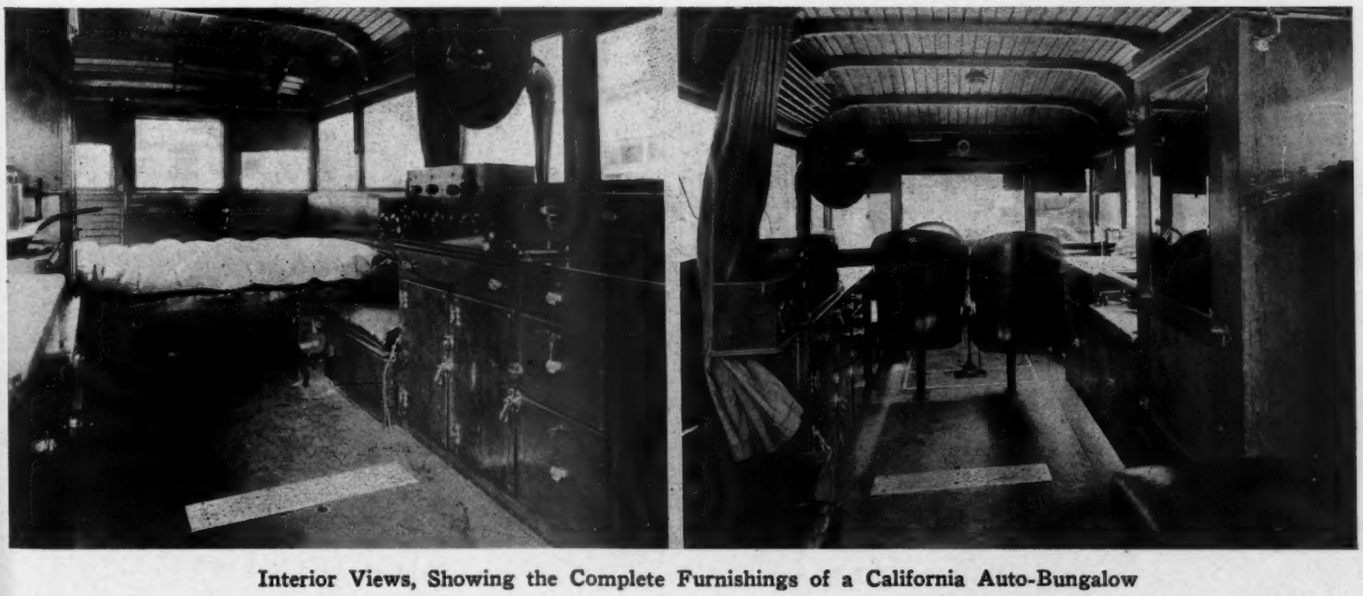
The interior of the bus is stained and varnished; the exterior is painted and finished in colors selected by the purchaser. Ventilation is provided by drop windows, which are supplied with screens. There is a door on the front right-hand side; and a rear door with rear folding step, making it easy for both entrance and exit from the vehicle.

Some of the purchasers of these vehicles are fitting them with radio outfits. For those who wish to travel with a driver or servant, an arrangement is made for the hanging of an auxiliary bed and tent on the outside of the vehicle. These outfits are made sufficiently sturdy to make trips of trans-continental length, as well as state tours. Their owners are invariably enthusiastic about them, for they have all the advantages of the first-class hotel accommodations, regardless of where they decide to stop.

There were 1956 commercial motor vehicles to find their way into various mercantile channels in California, a total that was greater by 12 than the number registered in May of this year, the former high month. The increased truck sale in August, over July, was 271.



This Job, Resembling Somewhat a Passenger Bus, is Rapidly Growing Popular on the Western Coast



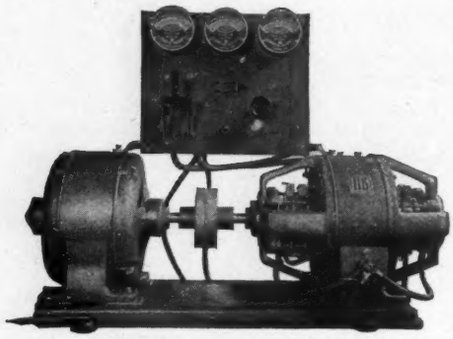
Interior Views, Showing the Complete Furnishings of a California Auto-Bungalow

Service Station and Repair Shop Appliances

New HB Constant Potential Charging Outfit

The Hobart Bros. Co., Troy, O., in outlining the advantages of charging batteries by its Constant Potential Charging Outfit, emphasizes these facts:

"It charges batteries in an average time of six to eight hours and uses one-third less current. The batteries draw in just the amperage needed, which automatically is reduced as they become more nearly charged. The batteries themselves regulate the amount of current they take in, so that heating is practically elimin-



New HB Constant Potential Battery-Charging Outfit

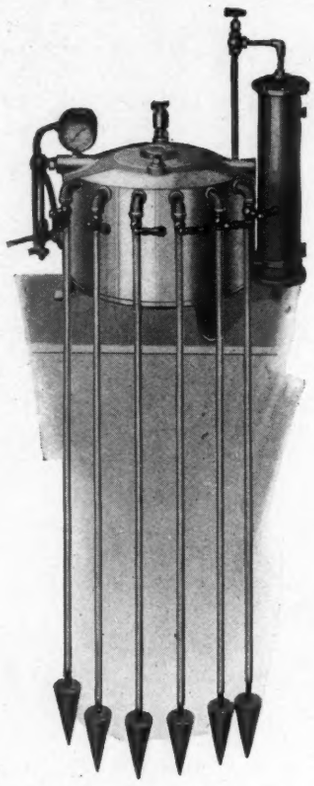
ated. As the HB is a 400-amp. outfit, it is possible to have twenty batteries additional, partially charged, taking, say 5 amp. each, totaling 100 amp. in all, making 32 batteries in all on the outfit."

The outfit consists of a KW double-wound generator with a commutator on each end 7½ volts—200 amp. giving a 400-amp. output under normal load, or a 500-amp output when necessary for a short time. This special generator is connected directly to a 1200 r.p.m. ball-bearing 5 hp. motor. Both are mounted on a common base plate and connected by a flexible tubing.

The switchboard necessary with this outfit consists of two high-reading ammeters, an accurate reading voltmeter, field rheostat, and a reversing switch, all mounted on a heavy black electric beveled slate panel. Also furnished with the board are three 8-ft. brass bars for battery connections on the charging table and 20 ft. of heavy duty cable for connecting the generator to the charging table. Price complete, as described, is $660. A smaller size outfit to meet the requirements of the average shop is also produced.

New Sepco Battery Steamer

The Automatic Electric Heater Co., Warren, O., claims that with its outfit the tops of batteries can be safely melted and the rubber jars removed in from six to ten minutes. When the proper amount of water is placed in the boiler of the Sepco battery steamer and the current turned on, an automatic pressure gage turns off the current when 15 lb. of steam is reached.



New Sepco Electric Battery Steamer

The boiler is of heavy cast aluminum and is equipped with water glass, safety valve, filler connection and air vent. A large hand hole is also provided, which makes the interior accessible for cleaning purposes. Two separate 1000-watt heating units of the latest double-radiating wall immersion type are installed in a special recess in the base of the boiler, insuring maximum heating efficiency.

The end of each three steam hose battery lead has a special nozzle to insert into the filler hole of any battery. These ends are perforated so as to direct the steam against the battery top, to insure fast melting without injuring the cells or casing. This outfit is furnished for two or three wire service on 110-volt alternating or direct current. The list price, without still is $100, with still, $130.

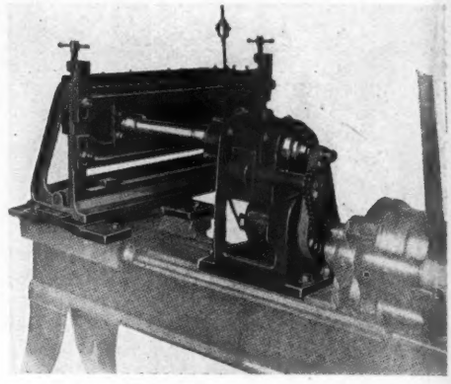
Truck Hire Cheaper Than Coolie Labor

Small Chinese firms have found it cheaper and more efficient to hire a truck than to employ the necessary number of coolies, says Consul General Edwin S. Cunningham, Shanghai, in a report to the Department of Commerce. A Shanghai newspaper has estimated that the expense of operating one truck for a day would be about $31. To do the same amount of work sixty coolies would be required at a cost of from $36 to $48 for labor alone, exclusive of all other expenses.

"Elteco" Cylinder Grinding Machine

The "Elteco" Cylinder Grinding Machine made by the Liberty Tool Co., Inc., Irvington, N. J., can be attached to any engine lathe having a 14-in. or larger swing.

It is a self-contained machine, driven by a ½-hp. repulsion-induction electric motor, which can be connected with any lamp socket having sufficient power to turn the grinding spindle with the proper feed. It will take any size cylinder block, including all six-cylinder types, either



Showing the "Elteco" Cylinder Grinding Machine Mounted in an Engine Lathe

open or closed. The angle plate on which the engine block is clamped, has an up and down adjustment from 2½ to 7 in. The two hand screws on the top of the angle plate arm are ⅞ in. x 5 in. It has an inside length of 33 in., and is adjustable in cross feed with a heavy 1-in. diameter screw spindle.

The eccentric throw from dead center is 1 in. in diameter, and is operated by a hand screw graduated by .0005 in. Three S. K. F. self-aligning ball bearings are used in the spindle, the third being located within 1 in. of the extreme end of the spindle next to the grinding wheel, thereby, it is stated, having no overhang to cause vibration or chattering when grinding. The main bearing is made of a high quality of phosphor bronze. Weight approximately 500 lb.

Reed Inside Micrometer and Height Gage Attachments

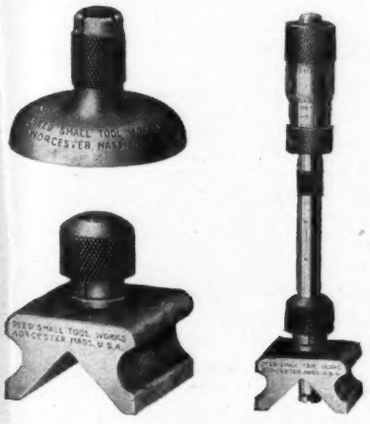
The Reed Small Tool Works, Worcester, Mass., recently developed an Inside Micrometer with a lower range than its former model.

This Micrometer, graduated to read to thousandths of an inch, has the usual half-inch run of spindle with a measuring range from 2 in. to 32 in. It embodies the sturdiness of the previous model and retains the regulation diameter of barrel, spindle and thimble. Extra large surfaces allow for figures of generous size. The rods fitted with hardened

tool steel anvils adjustable for wear, are interchangeable on the threaded stud at end of Micrometer head and can be used in combination. A detachable handle is furnished and so arranged that the Micrometer can be used for right or left-hand work.

The standard set, packed in a pocket-size case, consists of the Micrometer head, an adjusting wrench, five rods and ½-in. spacer, the capacity afforded being 2 in. to 7 in. When five additional 5-in. spacers are used the maximum range of 32 in. is secured.

The Inside Micrometer can be quickly transformed into a height gage by use of height gage attachments No. 6. By



Showing the New Micrometer Instruments Recently Developed by the Reed Small Tool Works, of Worcester, Mass.

attaching a rod of proper length to the Micrometer, any desired range from 3 in. to 32 in. can be obtained. The rod is inserted downward thru steel case-hardened base until anvil finds the surface from which measurement is to be taken. A quick-clamping knurled nut holds the measuring rod in perpendicular position.

Such a tool is useful in obtaining the height of projections from plane surfaces, the location of bushings in jigs, etc. It is particularly convenient on planer work, which often requires measurements to be taken from the bottom of a groove to points above, and for setting planer tools or the milling machine table. The V-shaped groove in the bottom of the base adapts the tool for use in cylindrical work, measuring distances between shafts, for alignment purposes, etc.

One of the illustrations pictures the combination of height gage alignment attachment with the Inside Micrometer, showing how a height gage is obtained.

By inserting a .250-in. drill rod in the base and attaching any standard indicator, a surface gage is in readiness for use in straightening shafts or for checking variance in distance between surfaces. A surface gage scriber can be easily clamped to rod, forming another very handy tool.

The Reed height gage round base attachment No. 7 differs from height gage alignment attachment No. 6 in construction and is intended mainly for height gage purposes.

The reamed hole, which fits the measuring rod, is also greater in size and depth. The upper end of support, vertically split at right angles, is adjusted to afford a sliding friction as the rod is inserted and will tend to prevent side-play, should wear take place from constant use. It also holds the base and micrometer measuring rod intact when tool is lifted from one surface to another, while its knurled exterior is convenient in handling.

New Portable Power Stand

A new portable power stand has been developed by the Westinghouse Electric & Mfg. Co., East Pittsburgh, Pa., to supply motive power for various appliances found in every-day use on farms and in stores, garages, and small machine shops.

The stand consists of a ¼ h. p. back-geared motor mounted on a tripod stand. The rotor speed of the motor is 1750 r.p.m. and the speed of the back-geared shaft is 210 r.p.m. Four pulleys are supplied, two of which take a one-inch flat belt and the other two a ⅜-in. round belt. Through this system of back gears and the four pulleys a wide range of speeds is obtainable and the motor can therefore easily be belted to operate at the proper speed any device that can be worked with a ¼ h. p. motor.

The stand is light, weighing only 55 lb. complete. A large wood-grip handle is mounted on the frame for convenience in moving. Although light, the stand is sturdy and temporarily stationary when placed at work, for an adjustable, telescopic rod, which may be used either as a brace or as a tension anchoring device, is used to anchor it. Ten feet of extension cord is provided so that the stand can operate at any convenient place, even when located at some distance from the lamp socket.

New Gellman Adjustable End Wrench

Auto accessory buyers will be interested in the Gellman wrench, a new achievement in wrenches. It is manufactured by Gellman Wrench Corp., Chamber of Commerce Bldg., Chicago, Ill.

This wrench is made of drop-forged high grade steel and is described as strong and durable, yet retaining the light and compact qualities so essential when working in tight corners. Adjustment is said to be instantaneous and positive and the range of "taking sizes" sufficiently wide for standard service.

It has a bull-dog grip and a satisfactory handle with an effective leverage. This wrench is manufactured in sizes of 6, 9, and 12 inches.

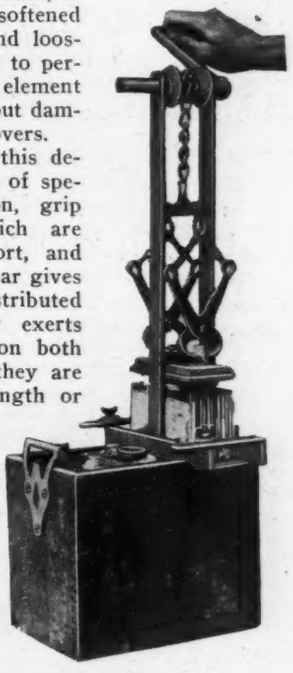
Elimination of the screw from this wrench for adjusting purposes and the substitution of a new method has done away with the usual bulkiness of the head. Adjustment is simple. The handle member forms the lower jaw and is notched at right angles to the gripping face. The lower jaw is also notched and is moved up and down by pressing with the thumb the corrugated part of the movable clutch thus disengaging the notches. Adjustment can be made either way without friction.

This wrench is manufactured in sizes of 6, 9, and 12 in. Each weighs 4, 10 and 20 oz., respectively.

Jolly Element Puller

Economy in time and effort in battery element extraction is the main characteristic of the Jolly Element Puller put out by the Diamond Mfg. Co., Hutchinson, Kans. By employment of this device the need of steam is said to have been eliminated, as the wax can be softened with a torch and loosened sufficiently to permit removal of element safely and without damage to jars or covers.

The jaws of this device, which are of special construction, grip the posts, which are bored very short, and the equalizing bar gives an evenly distributed pull. This bar exerts an equal pull on both posts whether they are of the same length or not. The jar is held down by the machine and is not pulled with the element.



Right: Jolly Element Puller

Views of the Gellman Adjustable End Wrench. The Upper View Shows How It is Manipulated

Taken From Current House Organs

"Puddin' Head"

For twenty years two chess players met daily at Brown's Chop House, silently took their places, silently played their game and silently departed. For twenty years a third party sat by and silently looked on.

Then one of the two players failed to show up—for the first time in twenty years. After waiting a few minutes, his partner said to the onlooker: "I guess he isn't coming today. Will you play his men?"

"Sorry," was the answer, "but I don't know the game."

He had followed every move for twenty years, but he didn't know the game. He had watched the drama of king and castle for two decades without sensing a single undercurrent of strategy, speculating on a single motive, or anticipating a single coup.

He had displayed infinite patience in looking at the game, but he couldn't be bothered looking into it. He showed every symptom of life except its first symptom—curiosity.

He belonged to that listless army of passive observers who clutter up the sidelines of business—men who look without seeing, listen without hearing, do without understanding.

Placed in an office—at a bench—he would remain twenty years ignorant of his neighbor's job, his superior's problems, his own significance. When the opportunity for advancement came, he would have to say: "Sorry, but I don't know the game."—*Bearing On Us*, Bearings Service Co., Detroit, Mich.

A Few Facts and Figures

I have just read that nearly three million motor vehicles are registered in the names of American farmers, and that something like sixty per cent of present production is sold to ruralists. The figure shark who dished up that information estimates that in the next ten years eight and one-half million motor cars will be owned by the agricultural population of the United States.

All of which means that, as time passes, there will be less and less opposition to the building and maintenance of decent highways. Our country cousins will demand good roads, and I've observed that they usually get what they want. They are good little voters, a fact never lost sight of by the gentlemen who make our laws and provide ways and means of keeping themselves elected.

And then when we have miles and miles of smooth roads running out in the country, we shall all live in luxury—if we have the price. Over those wonderful roads now in prospect we shall be able to get not less than forty miles to the gallon—if we can get the gallon. Or maybe the Genius of Menlo Park will, by the time the roads are ready, have perfected that storage battery and the smell of gasoline will be only a memory.

And then, again, we can drive out to our farmer friends and get real butter and newlaid cackle-berries, and fresh fruits and vegetables, and the prices—well, after you've driven twenty-three miles you're usually willing to pay well for the accommodation—and you usually have to.

I know of one instance where a city plutocrat, the proud owner of a flying flivver, had to pay an accommodating agriculturist fifty cents for two quarts of separated milk. He was sixty miles from home and his kiddies had to be fed. To show that he was a real sport the purveyor of milk let the flivverist have a bucket of water for Lizzie free of charge. It's only when the water is adulterated with milk that they charge for it.

Am I finding fault? Not on your life. I'm only reciting facts. I'm not blaming the frugal farmer—he is only getting back at the dust-raising city crowd that kill his fowls and then mock him. But just wait until all the roads are good. The farmer will come to town oftener, and we'll have more chances to get even. We'll just have the chances—that's all. Folk who are smart enough to buy motor trucks are smart enough to take good care of themselves.—*Driver Dan*, Sterling Motor Truck Co., Milwaukee, Wis.

Getting the Story Over

It is one thing to know your sales story and quite another to put it over in a way that commands attention and consideration. Many a deal fails to materialize simply because of the salesman's inability to adhere to schedule in the presentation of his selling talk.

He starts out all right, but the prospect interrupts him in some way or another, with the result that his selling machinery is thrown entirely out of gear and many of the points he intended to cover are entirely overlooked.

Wise, therefore, is the salesman who takes due precaution to insure proper presentation of his story before there is an opportunity for him to get derailed. True, this is not always possible, but much can be accomplished in this direction by the exercise of some little care in constructing the sales talk. With the various points coming along in logical sequence, the prospect's train of thought naturally follows closely the salesman's line of reasoning, and there is less risk of his wandering from the main thread of the story.

The better salesmen today in all lines fully realize the importance of the foregoing suggestion. Their sales talks are worked out with a view of carrying them safely past the buyer's first line trenches. They are thoroughly studied, tested in actual selling, revised and strengthened where needed—in short, every effort is put forth to make each word play a really vital part in delivering the message. Maximum force with minimum tax on buyer's patience is the chief requirement.

To be sure, there will, at least, be all sorts of questions to answer and all sorts of objections to be met, but the important point is that with the main issue carried, the prospect is usually sufficiently impressed that the remainder of the task is considerably easier. It is surprising the extent to which he will go in actually selling himself once the salesman has started him on the right track.—*Transport Headlight*, Transport Truck Co., Mount Pleasant, Mich.

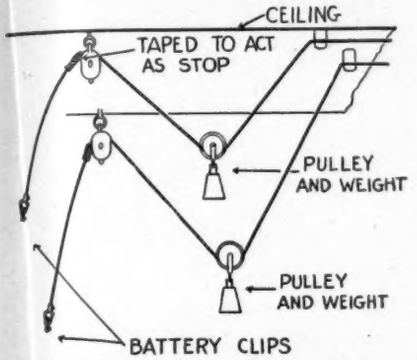
Armored Body Possessing the Innocent Appearance of an Ordinary Light Delivery Body

This body mounted on a Mack chassis has been designed to mislead the highwayman, retaining with all its simplicity the adequate protection required in the transfer, delivery or collection of large sums of money or valuable goods. Every means of modern protection is utilized in the construction of this body. The chassis is solid tire equipped. Special rubber shock absorbers and cushioning arrangements are employed. The resilience of these absorbers effectively counteracts the jar; solid tire equipment permitting smooth operation at fast speeds.

Here's an Answer to the Flat Rate Critics!

(*Continued from page 21*)

There is a well equipped battery department and a very large volume of work is transacted. The company is agent for the Willard, although it services all makes. A feature of the service, which is flat rated, of course, is the insurance policy reproduced herewith. It insures



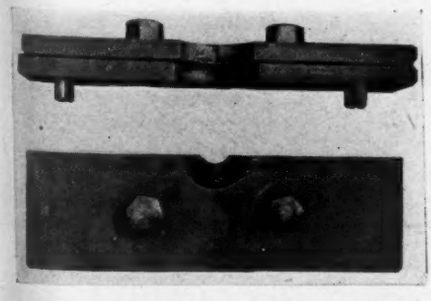
All Test Clips, a Set at Every Bench and Stand, Are Hung on Pulleys With Weights so That Clips Will Not Touch and Short Circuit and Are Out of Way When Not in Service.

owner storing his battery against loss by fire or theft. This policy is a winner.

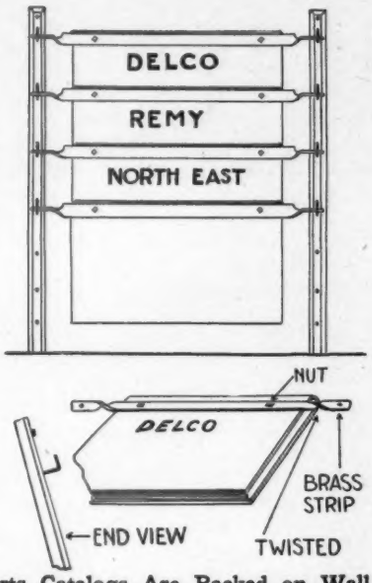
The real feature of this service station is the large stock and equipment in a small space. Aside from the battery room the service station is about 26 x 32 ft. floor space and of this amount room is left open so that two cars may enter the station for work. The floor is the only unoccupied space, for the walls, ceiling, rafters and even windows are employed to stock parts and material. There is no waste room as an accompanying illustration proves. Starter and generator armatures, as well as distributor caps are suspended from the rafters by chains. The Bendix drive springs are slid over rods between the window casings, and gears and pinions are similarly hung at another window. The tiny or very small parts are placed in vials in a rack under the springs, and boxes are also used for small parts. Larger parts are stocked in cases on the sides of the room, and all are tagged.

Parts Ingeniously Stored

Keys for ignition locks are ingeniously stored. There is an octagon shaped cabinet which revolves and its interior is used for suspending the keys which are



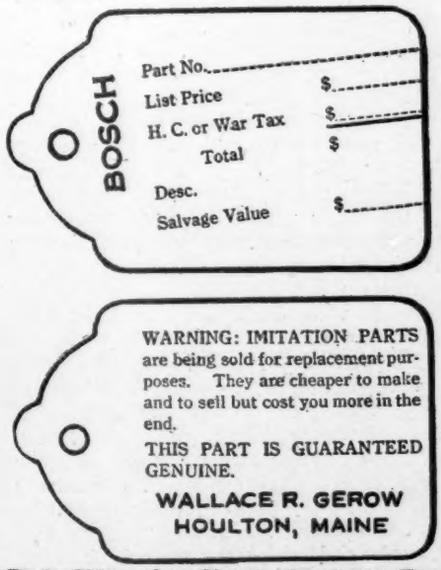
A Home-Made Device, i.e., Two Strips of Metal With Phonograph Spring for Use in Removing Pinions Where Space is Limited Between Gear and Housing.



Parts Catalogs Are Racked on Wall to Save Space and Make for Convenience

on safety pins and attached to cords. The exterior of the cabinet has small shelves with jars with parts. In this way a large stock is compactly stored. Tags on the safety pins give the serial number of keys, type of lock, etc.

The arrangement of the various work benches, test stands, etc., is equally compact. One section is shown. Here it will be seen that the book with wiring diagrams is mounted on an inclined desk right before the workman, and the book is secured so that it cannot be misplaced. Directly above the bench are the reels of wire the electrician may require in repairs and rebuild work. In front of this bench is a test stand, and above it is the method of weighing and pulleying the test clips so that they are out of the way when not in use, but readily reached. An accompanying sketch shows the construction. These clips are above all benches and test stands.

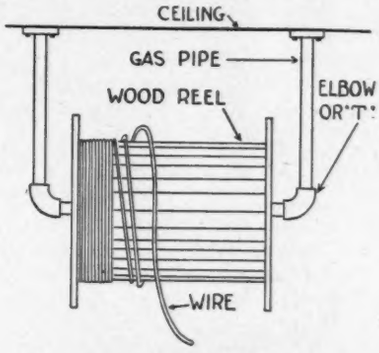

BOSCH
Part No.
List Price $
H. C. or War Tax $
Total $
Desc.
Salvage Value $
WARNING: IMITATION PARTS are being sold for replacement purposes. They are cheaper to make and to sell but cost you more in the end.
THIS PART IS GUARANTEED GENUINE.
WALLACE R. GEROW
HOULTON, MAINE

Both Sides of a Simple Inventory Tag Which is Attached to Each Part

The dealer's name is stamped upon the side, educating user as to the value of genuine parts

Another view depicts a work bench and the revolving cabinet the outside of which is employed for the tools and the inside for the bottles of shellac, etc. The mechanic at this bench was somewhat peeved because the writer would not permit him to make it tidy before the writer shot the photo. This revolving bench, as do others, save much time when a tool is required. Of course all tools must be placed in order or the economy of time is not effected.

While the Webber shop has all up-to-date equipment a number of special tools



Reels for Carrying Wire Are Constructed of Gas Pipe and Standard Connections

and devices have been designed and built. Among these is a pinion puller shown herewith. It comprises two metal plates with a 180-degree recess and between the plates is gripped a section of a phonograph spring. This tool is employed to remove a pinion or part where the space is limited between it and the housing. Another device is a special jig for mounting a distributor, complete unit, in the test stand and running it with coil to reproduce the conditions under which the unit would operate on the engine. The jig is adjustable.

Among the efforts to conserve the time, of both the customer and shop, is the arrangement of the parts catalogs. Generally the mechanic from the dealer or repair shop will ask for a part without giving thought to the proper name, serial or parts number, model of car, etc. All the catalogs or parts books, and there are many, are mounted on a board, as shown by the accompanying sketch. No book can be taken from this file, other than for reference.

The accounting or bookkeeping system is also compact and simplified. It is a loose leaf form book and comprises two sheets, a white sheet, which is the original, and a yellow, which is the carbon copy. If the Blank garage has work done during the month, several charges, or entries of sales, the carbon is sent as a bill after the amounts are totaled. After a certain length of time the originals are transferred to a file.

The Webbers transact a cash business, but, of course, there are some book accounts, but no so many. There is a sign displayed in the service station where all that see may read. It says:

We Buy for CASH
We Prefer to Sell for CASH
You Make It Easier for Us if You Pay CASH

What Do You Sell? Trucks or Transportation—

(*Continued from page 26*)

turn widens the dealers field for tires, oils, greases and specialties.

It must be remembered, too, that the tractor carries a side line of tractor auxiliary implements which are profit-making units in themselves. The tractor in agriculture carries with it plows, harrows, silage cutters and threshers; in commercial work it means standard and special trailers, dump bodies, scrapers, and other innumerable accessory units. Often this means the sale of several units per tractor, each with its own unit profit.

Where the Tractor Beats the Truck

Because of the great variety of influencing conditions, no fine distinction can be drawn between the transportation jobs for tractors and those for trucks. In general, however, it may be said that for short hauls of heavy bulk material, the tractor excels, the distance found practical increasing when the tractor is equipped with rubber tires. This distance is also directly proportional to the speeds of which the tractor is capable.

The tractor hauling twenty tons in four trailers usually offers much cheaper transportation than three five-ton trucks each equipped with its own power. Users of both medium and large size trucks often complain about the excessive costs involved when such expensive equipment must stand idle for loading. But this cost is often very materially cut down by having one power plant in the form of the tractor constantly at work hauling trailers; then the less expensive trailers are the only equipment standing idle and neither operator nor power plant is tied up with each unit. Instances have been recorded where the tractor and trailer have cut the cost per ton-mile from 97 to 28 cents.

In addition to the above, the tractor is a more mobile form of power both under adverse conditions and for making the short, quick turns necessary in industrial work; it can negotiate surfaces that the truck cannot tackle; it is a versatile unit, subject to a variety of combinations, and can be used for a far greater number of purposes on many jobs than can the truck.

Tractors of Two Types

Space need not be taken here to describe the two common types of tractors available for commercial purposes—the wheeled type and the crawler type. Each has its disadvantages for all kinds of work, but its decided advantages for certain sets of conditions.

The crawler types are usually higher in first cost but will operate over bad surface conditions upon which wheeled tractors cannot succeed. The former, therefore, are often used in construction work where the surface conditions are extremely trying; one often finds the large crawler types favored for this class of work. Crawler type tractors are also used for industrial work where rubber tires are not necessary, small ones being popular here. By virtue of their track-laying construction they are often used for freight car shifting where it is necessary for the tractor to pass over rails and switches, and they can easily maneuver where short turns are required.

The wheeled tractor is usually cheaper in upkeep as well as in the first cost. Although it cannot operate under the adverse conditions overcome by the crawler type, nevertheless the wheeled construction can be equipped with either hard or pneumatic tires offering decided advantages in many types of work.

Getting the Contract

Although considerable has been heard during the last few months about one make of tractor in the industrial field, other makes, which are very well adapted to the field, have been used for commercial purposes for several years. The impression is not to be gained, therefore, that only one make of tractor is available for the commercial car dealer.

Except in the case of one tractor manufacturer, the exclusive-contract policy will not handicap the dealer in securing a line of tractors and auxiliary units. Samples of all these goods cannot be stocked. But agency connections can be established easily, which, properly respected and diligently worked, will command very loyal support from manufacturer. The dealer, however, cannot expect to retain territory rights unless he shows results.

The dealer will not ask: "What makes of tractors, trailers and auxiliary units are best for me to handle?" He should let no one answer that question for him directly; but there are several ways through which he can get the right information to assist him in his own decision—an important decision deserving time and careful thought.

In the first place, the COMMERCIAL CAR JOURNAL, upon application, will furnish the names of manufacturers making equipment in which the dealer can be interested. Follow out some of these names to see just what these manufacturers have to offer. Also watch the trade papers for articles and pictures of the industrial uses of tractors, and read advertisements relating to the subject. Find out who are using tractors in commercial work in your territory, what they have, why, and how they like their equipment. This can be done by phone calls, by letters of inquiry and by observation on the part of the dealer and his salesmen when they are working on truck prospects. This survey will greatly assist the dealer in deciding what he should do; later he will want it when he actively starts tractor sales.

You can secure information in another way by getting in touch with other dealers in your city, and with dealers selling industrial tractor units in other cities. Get what information they have; call on a few large contractors in your own territory; watch the daily papers for advertisements of bid openings, contractor's equipment for sale, and equipment wanted. Tracing through a few of these leads is often a liberal education.

This little preliminary investigation by the dealers is important. It is not always best to take up with the first propositions that come along. If you are going to add commercial tractors and trailers to your truck line, go into it right—"get started on the right foot."

Some large dealers in large cities may find it practical to departmentize their truck and tractor business but many dealers cannot, and it seems not only unnecessary but also somewhat dangerous.

In handling automobiles and trucks together, the business should be departmentized in show space and sales force, because of the difference in customers and in appeal. It is seldom that a good automobile salesman is a good truck man, and vice versa. The automobile has an entirely different appeal and requires a different setting and presentation than the truck which is purely a utility product. There is not this marked distinction between the truck and tractor; both are utility units for similar purposes. The salesman selling either one must know the other; he should be able to substitute one for the other according to the best interests of the purchaser; and to do this he must know the economies of both units and have like information in their common competitor—the horse.

Stock, Show Room and Demonstration

As stated above it will be impossible for the dealer to carry samples of all of the tractor auxiliary units that he will have occasion to sell. He should, however, have in stock at least one sample of each of the three or four units which will be the most commonly used in his territory. These may consist of a tractor, a trailer with dump body or platform, a dump scraper and perhaps a concrete mixer. Do not hesitate to put one or two of these units in the show room with trucks; then occasionally display those units which previously you did not have room to show, and three or four times a month change the positions of the show room units to give the impression that the whole line is moving and that your business is full of action.

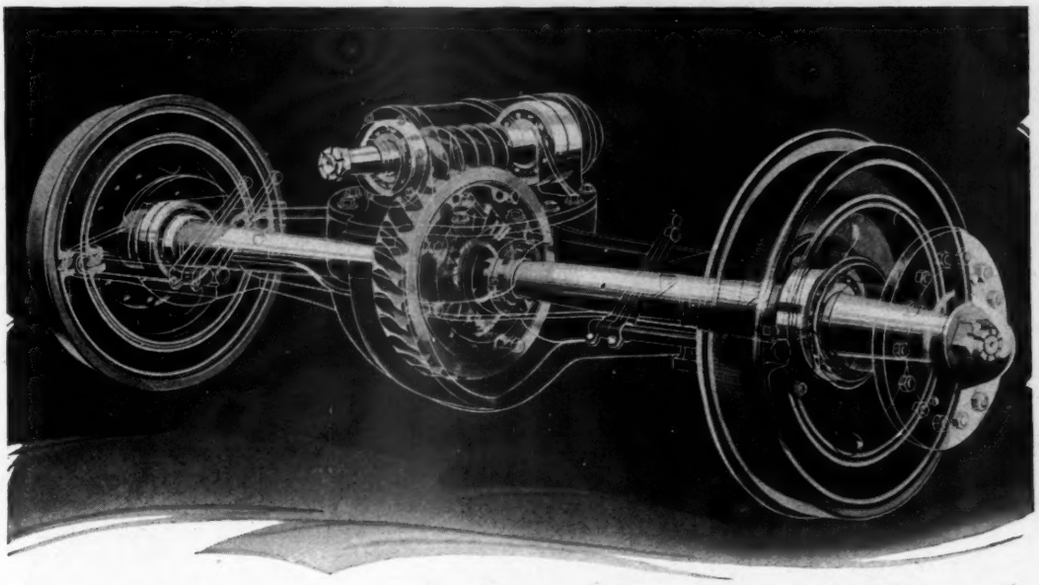
In addition to the number of samples that you can carry, display neatly and boldly, around the sales floor, hangers or pictures of other tractor auxiliary units that you can supply. Then have handy for quick reference all of the information necessary on these and other units so that you and your salesman, through quick and thorough service, can convey the impression that you are **the** commercial transportation dealer and a master at it. In other words, show as many actual samples as you can, then paint the rest of the pictures as big and completely as possible by the next best means.

Demonstrations Pay

Undoubtedly you are going to have to give demonstrations. Do not look askance at this as a monster to frighten you away from the bigger opportunities. You can exist without demonstrations, but if you want real business fast, use this agent to get it. Demonstration outfits will mean more than show room outfits; if you cannot have both, take the former, at least until you have the business nicely started.

Short demonstrations of hauling, in construction work, or at belt work can be given gratis, but when long trials are necessary, keep the outfit under the control of your own trained operator and

SKF



Ball Bearings on Rear Axle Assemblies

Maintain Original Settings of Rotating Parts

SUBJECTED to the severe and varying strains of road shocks and jars—as well as the heavy thrust loads due to turns, road slants and skidding—the rear axle assembly must be capable of withstanding severe strains without disturbing the accurate relation of rotating parts. The moment wear occurs there is destructive play in the hubs and the gears rub, grind and chatter with disastrous results.

To resist these heavy radial and thrust loads without appreciable wear, is the duty that must be demanded of the bearings in order to maintain the rotating parts in their original settings throughout the life of a car.

As this ability is an inherent quality of deep-groove ball bearings, as made by the Hess-Bright Manufacturing Company, they are considered by many as standard for this purpose.

THE HESS-BRIGHT MANUFACTURING COMPANY

Supervised by SKF INDUSTRIES, INC., 165 Broadway, New York City

799

Races displaced to show DEEP-GROOVE bearing carrying maximum end thrust in a forward direction.

Races displaced to show THE SAME bearing carrying maximum thrust in reverse direction.

BALL BEARINGS

The Highest Expression of the Bearing Principle

THIS SYMBOL IN ANY ADVERTISEMENT MEANS: SEE "CHILTON AUTOMOBILE DIRECTORY" FOR COMPLETE BUYING INFORMATION

have an understanding that you are going to make a legitimate charge for the work performed. This is only fair, if the prospect is not willing, he is not sincere enough to make an even gamble for you. In addition to doing work for him, you are helping him find a more economic form of transportation; this is of far greater importance to the prospect than any charge you may make to cover your expense.

Demonstration work can make or break a dealer. Do not go into a demonstration unless you know the conditions and are equipped to succeed under them, and do not continually use your time, equipment and money for demonstrations where you have not at least an even chance for sales. It is where these rules have not been heeded that money and prestige for the product have been quickly lost in demonstration work.

Sales Material

Selling commercial transportation is really a profession. It requires a specialized information that makes the finished salesman a transportation engineer. He should know manufacturing and construction problems, and the economies of all transportation agents involved in those problems. This means that the commercial car dealer and his salesmen should be continually hungry for all information available, and not only must the dealer keep his men in training, but also must he persistently seek new material to pass on to them in digested form. There is greater necessity for this in the truck, commercial tractor and trailer business than in any other branch of the automotive industry.

Request of the manufacturers of your tractor, trailer, and other auxiliary units all of the constructive sales data they have on commercial transportation. If you do not get all you seek, write again, listing very specific points on which you want help. The business is face to face with a deficiency in the kind of sales data the man on the firing line should have; the manufacturers themselves are largely to blame for this, and stirring them up on the subject should result in mutual benefit. The factory representatives calling upon you usually carry some very pertinent information. Copy as much of this as you want, and "pump them dry" of any other sales helps they may be carrying in their heads instead of in their portfolios.

The National Automobile Chamber of Commerce has several valuable bulletins on truck uses, perhaps it has data on the commercial uses of tractors and trailers. The Horse Association of America, with headquarters at the Union Stock Yards, Chicago, has sent out material in favor of the horse as the competitor of both trucks and tractors in industrial, municipal and construction work. Inasmuch as we must know our competitors' lines as well as our own, it is well for the dealer to secure this horse data. Thus he can be prepared to overcome resistance when the prospect already has such comparative information at hand. The cost of keeping horses, and the operating cost of horse equipment can be secured from manufacturers and contractors by personal contact. Watch the automobile trade papers for valuable material on transportation costs.

Some dealers assign to their bookkeepers or stenographers the duty of watching for and gathering sales material. This seems an excellent plan, no matter how busy the bookkeeper, stenographer or secretary may be, because this gathering of ammunition is a very important part of the fight. The dealer is going to have to sell the idea of tractor transportation or tractor power more often than he must sell only his particular types of machines. The mechanical presentation of the units is the easy part of selling, and the one toward which the salesman naturally tends.

Advertising and Follow-ups

There is not space here for a long treatment of this subject; a word or two on a few important details will not be amiss, however.

Some space advertising in your daily papers is exceedingly wise, but be consistent about it. Instead of emphasizing the detailed construction of a tractor, trailer, scraper or loader, keep the bigger theme of commercial transportation in predominance, and keep your company before the public as the commercial transportation merchant. Advertising is only a wedge and your salesmen must finish the selling jobs that advertising opens up.

Frequent contact with the prospect by a personal letter which carries real information is a very valuable agent. Be sure that advertising and follow-up material sent out by you, or by the manufacturer whose products you sell, is addressed specifically to reach the person in the prospect organization who is responsible for its transportation activities. In the large company, this party may not be the purchasing agent, in construction work he may not be the foreman.

When you receive a quantity of advertising material from the manufacturer, do not throw it in a corner in the stock room, put is as near your tickler as you can get it—under "Today's Business" if possible—and use it.

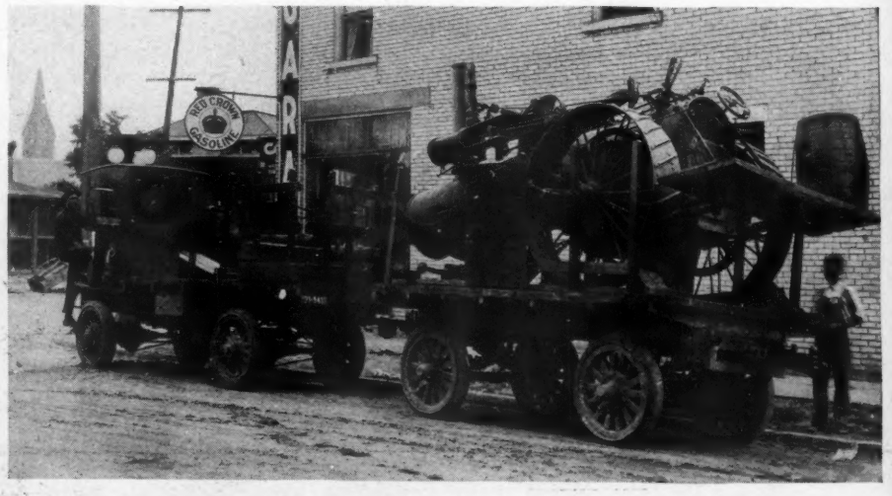
There is a tendency in all businesses for the salesman to let "loose ends" get away from him. This is only natural because in his enthusiasm and energy to get business, he keeps seeking new fields in hopes that they may develop something unusual. He is apt to forget about the investment he has in prospects on whom he has previously called. This requires a guiding hand on the part of the head of the business. The dealer himself must systematize the work of his men so that they can do a thorough job as they go along, instead of running wild, forgetting this detail or that and letting the loose ends go. Whether the personal call follow-up and the mailed follow-up are used separately or jointly, the work must be characterized by real system to be most effective and efficient.

Service

Under this subject there is just one caution: Give good service and charge for it. Do not let the so-called "free" tractor service of the agricultural field creep into the merchandising policies of tractors for commercial purposes. There is no need for it in connection with the sale of good standard products.

It must be remembered, however, that tractors in industrial work, like trucks, are often handled by a careless indifferent class of labor, and are put to considerable abuse. For these reasons be sure to start the outfits right by giving the purchaser ample operating instructions and a clean cut statement of the equipments limitations.

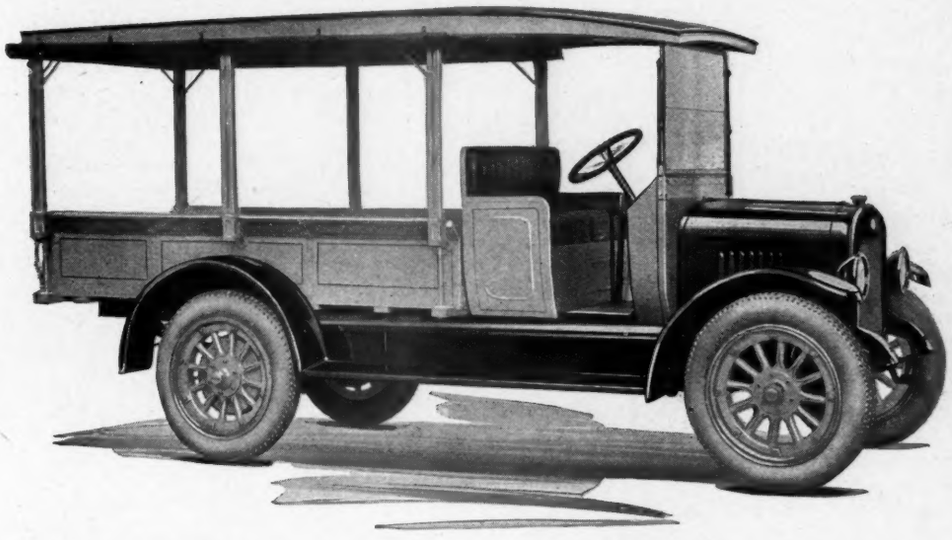
Selling tractors, trailers, and other accessories units for commercial uses is not child's play; neither is selling trucks. The combination of the two is not a get-rich-quick scheme; but it is the logical combination for the commercial car dealer who is a good enough business man to see the value of increased trade contact and who has ambition to succeed better in a larger way. The rest of the proposition will take care of itself, because there is no job worth while too big for the progressive American truck dealer.



This Extraordinary Use of Motor-Truck Equipment Shows That Most Every Day the Motor Truck is Filling a New Need, Especially Since the Railroad Strike

August Kuester, dealer in farm machinery, Clintonville, Wis., recently made a sale of a threshing machine to a farmer at Breed, Wis., which he was determined to deliver despite railroad tie-ups incident to the strike. The outfit was finally mounted, braced and secured on a trailer and drawn by a 3-ton FWD truck. As a result, delivery was made at Breed, a distance of 50 miles in a few hours, whereas any other method of delivery would have required days.

Straight Talk to Dealers Who Appraise the Years to Come



Spectacular as Ruggles success has been, the future will be even greater. The Ruggles franchise appeals to the man who wants to make money today while he builds for tomorrow.

Ruggles trucks are here to stay. Their fine appearance, high quality, driver comfort, economy of operation and moderate price appeal to business men who figure purchases with a sharp pencil.

Candidly the Ruggles franchise has nothing of interest to the shifter. But if you want a sound proposition, worthy of a permanent investment of your time and energies, write us at once. The Ruggles franchise is the most important business document in the history of the motor truck industry

Model 20 (Chassis) $1195
Capacity, 500 to 2,500 pounds

All prices f. o. b. factory

Model 40 (Chassis) $1795
Capacity, 2,000 to 5,000 pounds

RUGGLES MOTOR TRUCK COMPANY, Saginaw, Michigan
Canadian Factory: Ruggles Motor Truck Co., Ltd., London, Ont.

RUGGLES

The World's Greatest Truck Value

THIS SYMBOL IN ANY ADVERTISEMENT MEANS: SEE "CHILTON AUTOMOBILE DIRECTORY" FOR COMPLETE BUYING INFORMATION

Parts Makers See Need of Better Distribution and More Profits

(*Continued from page 22*)

Merryle S. Rukeyser, financial and business editor of the New York Tribune, ably discussed the automotive industry from the view point of the outsider. He commended the industry in keeping itself free from politics, unlike many of the other big industries. He was most hopeful for the immediate future of the motor vehicle business, as the present easy market for loans and the general upward movements of commodity prices indicated a sufficient volume of growth.

On the railroads' attitude toward the motor truck business he explained himself as follows:

"Railroad executives are not unmindful of the expanding possibilities for competition from motor trucks and are seriously discussing the means of meeting the new situation.

"I think it would be futile for railway executives to seek to combat the motor truck. It is an instrument for usefulness whose worth is being increasingly recognized. It can be made to facilitate transportation over steam railway lines by taking over short hauls and relieving congestion at necks of bottles, such as New York.

1923 Outlook Satisfactory

"As for the outlook, next year's automobile business ought to be satisfactory. In all respects but one, the factors which can be foreseen, must be placed on the asset side. The one exception is the fact that part of the 1922 buying was due to the accumulated demand which had become pent up during the depression of the latter part of 1920 and 1921.

"On the side of favorable influences, most of them can be expressed in the phrase—better general financial and industrial conditions."

Alfred Reeves, general manager of the N. A. C. C., had for his subject "Trends of the Industry and the Outlook for 1923." Reeves, as usual, gave one of his characteristic straight from the shoulder addresses, tempered with lots of facts and a few good stories. A most significant message lies in his advice to the truck industry that too many have been incorrectly sold and that gross overloading has resulted in condemnation of the truck, so that more state authorities are considering laws like those in force in Connecticut.

Best Remedy for Used Car Evil

Reeves hit the nail on the head when he stated that the used truck problem can only be solved when the truck owner is shown the advisability of using his truck until it is worn out. He says there is no cure for the used-car evil but the best remedy lies in making "small profits and a quick turn-over."

"This year's production," he stated further, "should exceed 2,000,000 cars and trucks. I believe it is safe to say that next year, with export demands increasing, more than 2,250,000 motor vehicles will be sold.

"In this year's production, about 10 per cent are trucks, but the truck production will keep on increasing as general business gets better.

"Shipments from the factories during August were the biggest in the history of the industry. Preliminary reports indicate a production in August of 270,000 vehicles, of which 22,000 were trucks. This is 20 per cent more than July and only 25,000 less than June, the biggest month in the history of our industry.

"During the first eight months the industry has made 1,664,000 motor vehicles, which is practically equal to the full year's production of 1921, when the figures were 1,668,000.

"Of the production this year, about 30 per cent were closed cars and this proportion I expect to see increased to 50 per cent within the next few years."

Motor Transportation Constantly Increasing

"Our reports show an increasing use of motor vehicles over the highways, not alone in the use of passenger cars but trucks and motor buses.

"Motor bus lines are now running regularly in 108 of the largest cities.

"There are 12,000 consolidated schools in the United States, according to the U. S. Bureau of Education. Most of these are using motor buses to transport children. There are still 194,000 rural schools not yet consolidated.

"Rome, Ga., is organizing a rural agricultural school, using motor buses to market the products and to transport 500 students.

"Chicago 'L' lines announce plans to use buses as feeders.

"Twenty-three Electric Railways are using buses as feeders to their main lines.

"Twenty-eight steam railroads in twenty-three states are using flanged wheel motor buses to handle short line business.

"Parts and accessory makers may look for business even better than they are doing this year. But I believe there are additional possibilities open to those firms which can develop new and useful devices."

T. M. Simpson, assistant secretary and credit manager of the Continental Motors Corp., gave a complete summary of the helpful work which is required to rejuvenate and reorganize companies in financial difficulties.

T. E. Challenger, credit manager of the McCord Mfg. Co., discussed the advantages of cultivating the jobber trade. He said in part:

"Of the various channels of distribution to the retail trade, I think that only the manufacturer, with a huge volume of business, is justified either in establishing his own branches or in selling direct to the retail trade.

"For the vast majority of parts manufacturers, whose products there exists a reasonably large volume of business, I believe that the well-organized, established and financed automotive equipment jobber offers the most economical, most substantial and profitable method of distribution."

The Advertising Managers' Council

Ezra W. Clark, advertising manager of the Clark Equipment Co., Buchanan, Mich., presided at this session. He spoke on "What the Advertising Managers' Council Means to You and Your Industry." He said that nothing can be gained by claiming that one's product is so far above the competitors, but that more would be gained by advertising the meritorious features of one's own product without referring to others.

"He who utters a false check may steal few or many dollars, but he who utters a false advertisement imperils the very integrity of his company—that upon which all credit inherently rests."

During his speech, Mr. Clark pointed out several fertile fields for the automobile market for the future such as motor bus transportation, the sale of cars to women as a class, the rural school system and the light delivery field.

"How to Get More Return for the Advertising Dollar" was the topic of a round robin discussion, and needless to state was the subject of much interest. S. E. Baldwin, advertising manager of the Willard Storage Battery Co., led the discussion. He showed without a question of a doubt that the only way for the parts manufacturer to get maximum returns was to direct his advertising efforts toward the dealer.

"Unless the dealer is sold carefully and thoroughly," said Baldwin, "we cannot expect to sell the consumer. We must sell the dealer our advertising with the purpose and reason back of it. We must get the dealer to work with us intelligently or we can't make good." He advised advertising managers to get closer to their dealers so that they may know how to give them the greatest help.

Substitute Facts for Superlatives

Harry Horning, of the Waukesha Motor Co., stated that many automotive manufacturers are placing their messages before their dealers in a slipshod manner. He stated that there are too many superlative statements made and not enough facts and common sense sales information given. He believes that the character of the dealer is what is responsible for his success, and that the manufacturers should exert more effort selling the dealer and less the consumer.

R. E. McKenzie, advertising manager of the Timken Roller Bearing Co., also voiced the opinion that advertising should be directed to the dealer and the manufacturer rather than the consumer.

"Charting the Future Markets of the Automotive Industry" was the topic assigned to two members of the automotive trade press: Harry Tipper, business manager, Class Journal Co. and C. A. Musselman, treasurer and general manager of the CHILTON COMPANY.

What Economics Disclose

Tipper outlined the various periods through through which every industry must pass, namely: First, the period of growth; second, the period of absorption; next, the period of adjustment, following which is period of stability.

"The automobile business is at present in a period of adjustment," said Tipper. The period of experimentation lasted until about 1910; the period of absorption until about 1920, and we have entered upon the period of adjustment.

"From these calculations, the curves of production and of registration have been

Specify Bethlehem Wheels

—*for better service, greater economy!*

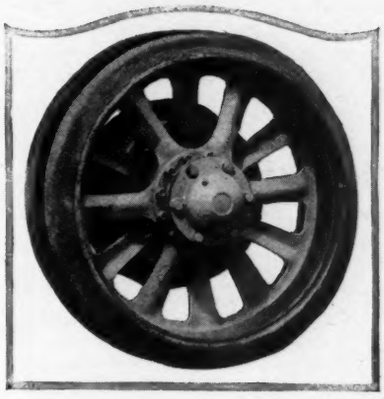
WHEN you buy a truck, make certain that it comes to you equipped with Bethlehem Rolled Steel Truck Wheels.

Bethlehem Wheels combine exceptional serviceability with exceptional economy. They are strong enough to carry your truck through the hardest service, and are guaranteed for the life of the truck. They are never injured by the pressing on of tires—yet, with their tremendous strength, Bethlehem Wheels are light enough to reduce your gasoline costs and repair bills.

Best of all, despite their greater serviceability and economy, Bethlehem Wheels cost no more!

Quantity production and unusual manufacturing facilities underlie the low cost at which Bethlehem Wheels are furnished to truck builders.

When next you purchase a truck, specify Bethlehem Wheels, and get the benefit of their better service and economy!



The Bethlehem Wheel is simple in construction and strong and durable in service.

BETHLEHEM STEEL COMPANY
BETHLEHEM, PA.

Sales Offices in the Following Cities:

New York Philadelphia Washington Pittsburgh Detroit St. Louis Boston
Baltimore Atlanta Cleveland Buffalo Chicago San Francisco

BETHLEHEM
ROLLED STEEL TRUCK WHEELS

Mack Trucks can be obtained equipped with Bethlehem Rolled Steel Truck Wheels.

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arranged showing the probable future development of these in volume during the next few years. These curves are what are known as probability curves and they are much more accurate than the usual curves considered by commercial business because they are mathematically calculated in accordance with the understood law of directional flow and not merely indicative of the balanced areas of either volume or price.

"These statistics have been again divided to show the relation between this general curve of production and registration, and the various price groups within the industry. They are being carried further so that they will indicate the development in the various territories or geographical areas so that the registration in these areas would indicate the varying condition of the market in the particular territories.

"I have samples of these two territories showing the registration curve in its relation to the population curve. In one of these territories the registration curve has arrived at a parallel direction to the population curve so that in this area the new registrations will be practically limited to the increase of population and wealth.

"In the other example, the direction of the registration curve is still much more sharply upward than the population curve, indicating that it will be some years before the market will be stabilized to the same point in this particular territory.

"Investigation into the replacement is the most difficult part of this examination of the market because we have not yet arrived at the maximum requirement of service with the large portion of the volume of cars already in use and because there are no general statistics other than those we could gather ourselves by field work as to the rate of replacement for the particular part. It is necessary, therefore, for us to investigate in different sections of the country, the extent of sale required to service the cars in that particular area and from these investigations calculate the average requirement over the whole country for the number of cars in use. Of course every investigation of that kind adds to the accumulative volume of information and corrects the previous investigation so that it represents a smaller degree of error in the general calculations."

America's Greatest Manufacturing Enterprise

Musselman presented figures showing that the automotive industry is America's greatest manufacturing enterprise. He showed the reason why the dealer and the service station are the dominating factors in the sales of replacement parts, and why this market will prove of extraordinary interest to the parts manufacturer, if he will cultivate it properly. Complete details of Musselman's address appear elsewhere in this issue.

Some excellent points on automobile publicity were presented by Walter Bermingham, automobile editor of the Chicago Evening Post, and James C. Dalton, Editor of Automotive Industries.

"Try to keep in mind," said Dalton, "that there are certain kinds of publicity of deep interest to the business paper which ... of no possible interest to the newspaper. Don't direct all your energies to obtaining publicity in newspapers. Remember that a considerable portion of it will be of more value to you in the business press. You always are willing to suit your convenience to that of the newspaper. Why not try some of the time suiting the convenience of your business paper?

"Keep it in mind that exceedingly valuable good will for your company and its products can be built up through business papers and business papers alone. They are addressed exclusively to potential purchasers and in them you don't waste any of your information.

Maurice Switzer's address on "The Anomalous Position of the Average Advertising Manager" threw light on the paradox, the advertising manager who had nothing to say about advertising, a common instance in many companies today. He pointed out that copy prepared by an expert was often ruined by those who were totally unfit to pass upon it. "One of the ways," he said, "to make the advertising dollar buy more, is to eliminate the interference that so many advertising men have to suffer from executives or superiors."

Other discussions during the session were: "A Vigilance Message to Automotive Advertisers," by William P. Green, National Vigilance Committee of the Associated Advertising Clubs of the World; and "Cutting Advertising Costs Through Standardization of Sizes and Forms in Selling Literature," by J. C. McQuiston, manager, Department of Publicity, Westinghouse Electric and Manufacturing Co., and "My Best Bet for Getting More Return from the Advertising Dollar," led by S. E. Baldwin, advertising manager, Willard Storage Battery Co.

The meeting of the Export Managers on Thursday was an exceedingly interesting one, in view or the 1922 activity in automotive exports. An instructive address was made by S. W. Dorman, vice-president and general manager of the Overseas Motor Service Corp.

"Automotive exports will increase threefold if stimulated by financing facilities based on collateral value of motor vehicles, deposit by foreign dealer, insurance of credit risk, and provision for co-operative disposal by bank and manufacturer of any rejected shipments," was one of the high spots in "Co-operative Efforts in Automotive Export Trade," by George F. Bauer, secretary, Foreign Trade Committee, N. A. C. C.

A review of the work done by the Automotive Division, Department of Commerce in promoting international trade and the plans for the immediate future, were presented by Gordon Lee, chief of the division. There is, on file in the Automotive Division, complete specifications, etc., of practically every car in the world, information from which can be obtained on request. A foreign trade manual is now in preparation and will be available for distribution soon.

Speakers at the Traffic Managers' session were: A. L. Viles, general manager of the Rubber Association of America; H. E. McGivern, traffic manager, Motor Wheel Corp., and W. H. Twohig, traffic manager, Willard Storage Battery Co.

New Booklet on Importance of Shop Equipment

The Jacobs Mfg. Co., Hartford, Conn., manufacturer of chucks, is to be congratulated on a little booklet it has recently issued called the "Backbone of Automotive Service—Machine Tool Equipment." The booklet, says the company, is issued in conjunction with the campaign now running in the automotive trade publications to promote a more general appreciation of the importance of adequate shop equipment and is intended solely for the information and guidance of service stations and repair shops.

Several of the time and money-saving tools and machines that are of great advantage to the repair shop are mentioned in the pamphlet together with convincing arguments as to why the repairman should not do without such equipment. No specific makes of machines are mentioned, as the purpose of the book is simply to suggest ways of improving shop practice and increasing service profits.

New Ruggles Char-a-Banc Carries 24 Passengers

This new Ruggles 168-in. wheelbase passenger job has just been delivered for use in and out of the city of Nanaimo, Vancouver Island

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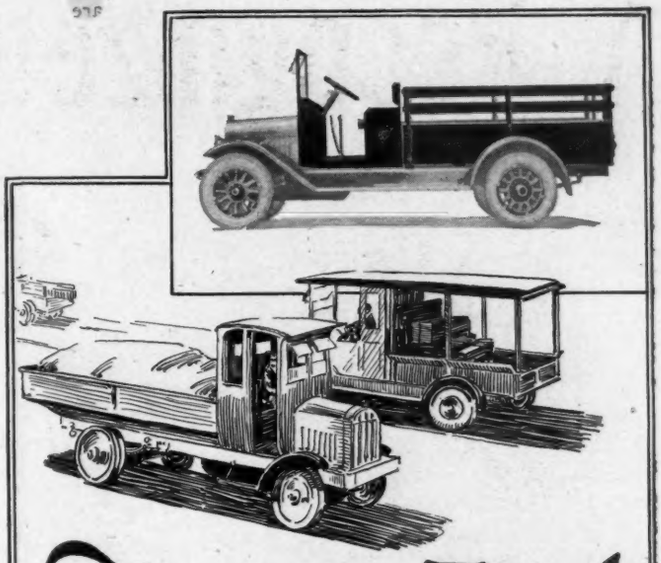

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Detroit, Michigan Bay City, Michigan

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Wisconsin Motors Need No "Explaining"

AN unproved or little-known motor is a sales handicap. Volumes of argument explaining away a questioned power plant can't match the decided approval earned by two confident words.

"Consistent Wisconsin" to the average truck buyer, stands for all he wishes to know about the quality of the motor. His own knowledge of Wisconsin's achievements, of Wisconsin's striking records for consistent and economical performance, is the salesman's soundest solicitation.

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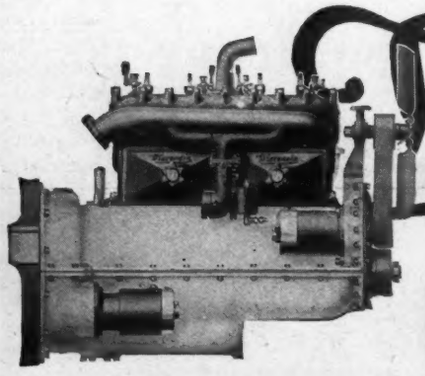
MILWAUKEE WISCONSIN

Offices in New York
Cleveland — Chicago
Seattle — Los Angeles



Wisconsin
Consistent
Consistent

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